COUNTWAY LIBRARY
HC 4YQ8 F

BOSTON
MEDICAL LIBRARY
8 THE FENWAY

EDMUND B. FITZGERALD, M.D.
475 COMMONWEALTH AVE.
BOSTON, MASS.

DISEASES OF THE SKIN

CLINICAL PEDIATRICS

DISEASES OF THE SKIN
IN
INFANCY *and* CHILDHOOD

BY
HOWARD FOX, A.B., M.D.
PROFESSOR OF DERMATOLOGY AND SYPHILOLOGY, NEW YORK UNIVERSITY; VISITING
DERMATOLOGIST TO BELLEVUE, LENOX HILL, AND WILLARD PARKER HOSPITALS;
FORMER PRESIDENT, AMERICAN DERMATOLOGICAL ASSOCIATION

SUPERVISING EDITOR
ROYAL STORRS HAYNES, PH.B., M.D.
CLINICAL PROFESSOR OF DISEASES OF CHILDREN
COLLEGE OF PHYSICIANS AND SURGEONS (COLUMBIA UNIV.), NEW YORK CITY

VOLUME XVI

112 ILLUSTRATIONS

D. APPLETON AND COMPANY
NEW YORK LONDON

1930

Copyright, 1930, by
D. APPLETON AND COMPANY

BOSTON MEDICAL
OCT 28 1964
LIBRARY

27A343

PRINTED IN THE UNITED STATES OF AMERICA

PREFACE

Cutaneous affections of infancy and childhood are numerous since many begin in early life and some are seen only at this period. It would be impossible in a volume of this size to describe them all *in detail*. An attempt has been made, however, to give an adequate description of the common and more important skin affections of early life and to briefly describe some of the rarer ones.

In trying to make this volume of practical value to physicians who have not made a special study of skin diseases, emphasis is laid on the sections relating to clinical description, differential diagnosis and treatment. The sections on etiology and pathology are in general rather brief and the useless discussion of debatable or unknown causation is omitted. The methods of treatment which I have found to be most useful are especially emphasized.

A reasonable number of formulæ are mentioned in the text while a more complete list of remedies is given in an appended formulary. The technic of treatment by the Roentgen rays, radium and other physical methods is not discussed as this is to be found in special treatises on these subjects. I have tried to give a fair statement of modern views on diseases of the skin but have not hesitated to express my personal opinions when necessary and to mention cases observed in hospital and private practice.

In writing a treatise on dermatology, no matter how small, the classification of individual dermatoses is difficult. No entirely satisfactory plan has as yet been devised. To classify skin diseases solely on etiologic grounds is not satisfactory owing to the gaps in our knowledge, especially of the inflammatory diseases. The best plan has seemed to be a compromise, some diseases being grouped from an etiological standpoint and others from similarity in clinical appearance.

The eighty black and white illustrations are mostly from the photographic collection of my father, Dr. George Henry Fox, and from my own. Several photomicrographs are included, but those relating to histology have been omitted. I am indebted to Dr. Hans J. Schwartz and Dr. Lester M. Wieder for permission to reproduce two photographs.

The bibliography includes somes articles of general interest, although special attention is paid to those concerning skin diseases of infants and children. Recent publications containing a complete review of the literature are included.

Reference is frequently made to the excellent little volume of Adamson and to the recent work of Finkelstein, Galewsky and Halberstaedter as well as to the standard textbooks of Pusey, Sutton, Ormsby, Stelwagon, MacLeod, Highman and particularly of Darier. When the names of these authors are quoted without mention in the bibliography the above named books are indicated.

I wish to express my thanks to Dr. Walter J. Highman, my colleague at the University and Bellevue Clinic, for reading my manuscript and making valuable suggestions; to my office associate, Dr. Marcus R. Caro, for assistance with the formulary; to my secretary, Mrs. Ruth K. Shevit, for careful checking of the bibliography, and to the publishers for their uniform courtesy.

Howard Fox

PUBLISHERS' ANNOUNCEMENT

The publishers take pleasure in presenting to the medical profession the series of monographs of which this volume forms a unit.

The many inquiries which reached them proved, in advance of publication, that the work should be in monographic form and clinical in its presentation.

The series when completed will, they believe, be the most useful for the audience for whom it is written, the general practitioner of medicine, that has been presented in its particular field.

The authors are all men of wide experience and, in the main, teachers. The combination makes the work authoritative and of the utmost service in a field which has been often termed a "therapeutic specialty."

CONTENTS

PAGE

PREFACE v

CHAPTER

I. CONGENITAL ABNORMALITIES 1
  - Nevi 1
    - Symptoms 1
    - Vascular Nevi 1
    - Lymphatic Nevi 5
    - Pigmentary Nevi 5
    - Diagnosis 9
    - Etiology and Pathology 10
    - Treatment 11
  - Ichthyosis 13
    - Symptoms 13
    - Etiology 16
    - Diagnosis 17
    - Treatment 17
  - Keratosis Palmaris et Plantaris 17
    - Symptoms 17
    - Etiology 18
    - Treatment 18
  - Epidermolysis Bullosa 18
    - Symptoms 18
    - Etiology and Pathology 19
    - Treatment 19
  - Xeroderma Pigmentosum 19
    - Symptoms 19
    - Etiology and Pathology 21
    - Diagnosis 21
    - Treatment 22
    - Prognosis 22
  - Adenoma Sebaceum 22
    - Symptoms 22
    - Etiology and Pathology 23
    - Diagnosis 25
    - Treatment 25
    - Prognosis 25
  - Neurofibromatosis (Recklinghausen's Disease) 25
    - Symptoms 25

CHAPTER PAGE
Etiology and Pathology 26
Diagnosis 26
Treatment 27
Prognosis 27
Multiple Benign Cystic Epithelioma 27
Symptoms 27
Etiology and Pathology 27
Diagnosis 27
Treatment 27
Prognosis 27
Syringocystoma 28
Urticaria Pigmentosa 28
Symptoms 28
Etiology and Pathology 31
Diagnosis 31
Treatment 31

II. ARTIFICIAL DERMATITIS 33
General Considerations 33
Dermatitis Traumatica 34
Erythema Intertrigo 34
Symptoms 34
Diagnosis 34
Treatment 34
Erythema Gluteale (Napkin Erythema) 35
Symptoms 35
Etiology 35
Diagnosis 35
Treatment 36
Dermatitis Calorica and Dermatitis Actinica 36
Erythema Pernio (Chilblain) 37
Symptoms 37
Etiology 37
Diagnosis 38
Treatment 38
Prognosis 38
Sunburn 38
Treatment 38
Radiodermatitis 39
Symptoms 39
Etiology and Pathology 41
Treatment 41
Prognosis 41
Dermatitis Venenata 41

CHAPTER PAGE
Dermatitis Medicamentosa 47
  Symptoms 47
  Etiology 47
  Diagnosis 47
  Treatment 48
Dermatitis Factitia 54

III. ERYTHEMAS 56
Circulatory Disturbances of Skin 56
  Passive Hyperemia 56
  Active Hyperemia 57
Erythema Hyperæmicum 57
  Symptoms 57
  Diagnosis 58
  Treatment 58
Erythema Scarlatiniforme 58
  Symptoms 58
  Etiology 59
  Diagnosis 59
  Treatment 59
Erythema Multiforme 59
  Symptoms 59
  Etiology and Pathology 62
  Diagnosis 62
  Treatment 63
  Prognosis 63
Erythema Nodosum 63
  Symptoms 63
  Etiology and Pathology 64
  Diagnosis 64
  Treatment 64

IV. PURPURA AND INFANTILE SCURVY 66
Purpura 66
  General Symptomatology 66
    Purpura Simplex 68
    Purpura Rheumatica 68
    Henoch's Purpura 68
    Purpura Hæmorrhagica 69
    Secondary (Symptomatic) Purpura 69
  Etiology and Pathology 70
  Diagnosis 70
  Treatment 70
  Infantile Scurvy 71

CHAPTER PAGE
Symptoms 71
Etiology 71
Treatment 71

V. URTICARIA AND PRURIGO 73
Urticaria 73
Symptoms 73
Course 74
Etiology and Pathology 74
Diagnosis 75
Treatment 76
Prognosis 76
Angioneurotic Edema 76
Symptoms 77
Etiology and Pathology 77
Diagnosis 77
Treatment 78
Prognosis 78
Papular Urticaria (Lichen Urticatus) 78
Symptoms 79
Etiology and Pathology 79
Diagnosis 80
Treatment 80
Prognosis 81
Prurigo 81
Symptoms 81
Etiology and Pathology 82
Diagnosis 82
Treatment 82
Prognosis 83

VI. VESICULAR AND BULLOUS DISEASES 84
Herpes Simplex 84
Symptoms 84
Etiology and Pathology 86
Diagnosis 87
Treatment 87
Prognosis 87
Herpes Zoster 87
Symptoms 88
Etiology and Pathology 91
Diagnosis 92
Treatment 92
Prognosis 93

CHAPTER PAGE

Pompholyx 93
  Symptoms 93
  Etiology and Pathology 93
  Diagnosis 94
  Treatment 94
  Prognosis 94
Hydroa Vacciniforme 94
  Symptoms 94
  Etiology and Pathology 96
  Diagnosis 97
  Treatment 97
  Prognosis 97
 Hydroa Puerorum 97
Pemphigus 98
 Pemphigus Vulgaris 98
  Etiology 100
  Diagnosis 101
  Treatment 101
  Prognosis 102
Dermatitis Herpetiformis 102
  Symptoms 102
  Etiology and Pathology 104
  Diagnosis 105
  Treatment 105
  Prognosis 106
  Summary of Special Features in Childhood . . . 106

VII. ECZEMA 108
General Considerations 108
  Symptoms 109
  Etiology 115
  Pathology 117
  Diagnosis 117
  Treatment 118
  Prognosis 122

VIII. SCALING DISEASES 124
Psoriasis 124
  Symptoms 124
  Etiology and Pathology 127
  Diagnosis 128
  Treatment 129
  Prognosis 133
  Summary of Special Features in Children 133

CHAPTER PAGE
Treatment of Ringworm 183
  Ringworm of the Scalp 183
  Ringworm of the Glabrous Skin 188
  Ringworm of the Nails 188
Prognosis of Ringworm 188
Favus 188
  Symptoms 188
  Etiology 191
  Pathology 192
  Diagnosis 192
  Treatment 193
  Prognosis 194
Tinea Cruris 194
Pityriasis Versicolor 195
  Symptoms 195
  Etiology 195
  Diagnosis 196
  Treatment 196
  Prognosis 196
Actinomycosis 196
  Symptoms 196
  Etiology and Pathology 197
  Diagnosis 197
  Treatment 197
  Prognosis 197
Blastomycosis 198
  Symptoms 198
  Etiology and Pathology 198
  Diagnosis 199
  Treatment 199
  Prognosis 199
Sporotrichosis 199
  Symptoms 199
  Etiology and Pathology 200
  Diagnosis 200
  Treatment 201
  Prognosis 201

XI. DISEASES DUE TO PYOGENIC COCCI 203
General Considerations 203
  Streptococcic Infections 203
  Staphylococcic Infections 203
Impetigo Contagiosa 204
  Symptoms 204

CHAPTER PAGE
- Varieties 205
- Etiology and Pathology 207
- Diagnosis 207
- Treatment 208
- Prognosis 210

Ecthyma 210
- Symptoms 210
- Etiology 210
- Diagnosis 210
- Treatment 210

Pemphigus Neonatorum 210
- Symptoms 212
- Etiology 212
- Diagnosis 213
- Treatment 213
- Prognosis 214

Erysipelas 214
- Symptoms 214
- Course 214
- Etiology and Pathology 215
- Diagnosis 215
- Treatment 215
- Prognosis 215

Erysipeloid 215
- Symptoms 216
- Etiology 216
- Treatment 216

Follicular Impetigo 216
- Symptoms 216
- Etiology and Pathology 216
- Treatment 217

Furunculosis 217
- Symptoms 217
- Etiology and Pathology 217
- Treatment 218
- Prognosis 219

Multiple Abscesses of Infants 219
- Symptoms 219
- Etiology 219
- Diagnosis 219
- Treatment 219
- Prognosis 219

Dermatitis Vegetans 220
- Symptoms 220

CHAPTER PAGE
Etiology 220
Diagnosis 220
Treatment 220
Granuloma Pyogenicum 220
Symptoms 220
Etiology and Pathology 221
Diagnosis 221
Treatment 222
Prognosis 222
Dermatitis Gangrenosa Infantum 222
Symptoms 222
Etiology and Pathology 222
Diagnosis 222
Treatment 222
Prognosis 223

XII. DISEASES DUE TO BACILLI 224
Tuberculosis of the Skin 224
Lupus Vulgaris 224
Symptoms 225
Etiology 227
Pathology 228
Diagnosis 228
Treatment 228
Prognosis 230
Tuberculosis Verrucosa Cutis 231
Etiology and Pathology 232
Treatment 232
Tuberculosis Ulcerosa 232
Symptoms 232
Etiology and Pathology 232
Treatment 232
Scrofuloderma 233
Symptoms 233
Etiology and Pathology 234
Treatment 235
Erythema Induratum 235
Symptoms 235
Etiology and Pathology 236
Diagnosis 236
Treatment 236
Tuberculids 236
Lichen Scrofulosorum 237
Symptoms 237

CHAPTER PAGE
        Etiology 238
        Treatment 238
    Papulonecrotic Tuberculid 238
        Symptoms 238
        Etiology and Pathology 238
        Treatment 239
    Lichen Nitidus 239
        Symptoms 239
        Etiology and Pathology 239
        Diagnosis 239
        Treatment 239
    Granuloma Annulare 240
        Symptoms 240
        Etiology 240
        Diagnosis 240
        Treatment 240
        Prognosis 241
    Lupus Erythematosus 241
        Symptoms 241
        Etiology and Pathology 242
        Diagnosis 242
        Treatment 242
        Prognosis 243
    Lupus Erythematosus Disseminatus 243
Leprosy 243
        Symptoms 244
    Nodular Type 244
    Maculo-Anesthetic Type 246
        Etiology 246
        Diagnosis 247
        Treatment 247
        Prognosis 247
Diphtheria of the Skin 248
        Symptoms 248
        Etiology 248
        Diagnosis 249
        Treatment 249
        Prognosis 249

XIII. Diseases of the Hair and Nails 251
    The Hair 251
        Hypertrichosis 251
        Alopecia Congenita 252
            Symptoms 252

CHAPTER PAGE
Etiology 252
Treatment 252
Atrophia Pilorum Propria 253
Fragilitas Crinium 254
Trichorrhexis Nodosa 254
Symptoms 254
Etiology 254
Treatment 254
Monilethrix 254
Symptoms 254
Etiology 255
Treatment 255
Alopecia Symptomatica 255
Alopecia Areata 257
Symptoms 257
Etiology 259
Diagnosis 260
Treatment 261
Prognosis 261
Canities 262
Ringed Hair 263
The Nails 263
Congenital Malformations 264
Onychogryphosis 265
Pachyonychia Congenita 266
Traumatic Affections 266
Constitutional Diseases 267
Localized Dermatoses 268
Miscellaneous Affections 269
Onychorrhexis 269
Leukonychia 269
Koilonychia 269
Paronychia 270
General Diagnosis 270
Treatment 271

XIV. DISEASES OF THE SWEAT AND SEBACEOUS GLANDS 274
The Sweat-Glands 274
Hyperidrosis 274
Symptoms 274
Treatment 275
Etiology and Pathology 275
Bromidrosis 275
Anidrosis 276

CHAPTER PAGE
Chromidrosis 276
Hematidrosis 276
Sudamina 276
Miliaria 277
Granulosis Rubra Nasi 278
Symptoms 278
Etiology and Pathology 278
Diagnosis 278
Treatment 279
Prognosis 279
The Sebaceous Glands 279
Comedo 279
Acne Vulgaris 280
Symptoms 280
Etiology and Pathology 280
Diagnosis 281
Treatment 281
Prognosis 282
Milium 282
Atheroma (Sebaceous Cyst) 282

XV. PIGMENTARY DISEASES 284
General Considerations 284
Hyperpigmentation 284
Lentigo 287
Chloasma 288
Depigmentation 288
Albinismus 288
Vitiligo 289
Etiology and Pathology 290
Diagnosis 293
Treatment 294
Prognosis 294

XVI. VASCULAR DISEASES 295
Telangiectasia 295
Hereditary Hemorrhagic Telangiectasia 296
Symptoms 296
Etiology 296
Treatment 296
Prognosis 296
Angiokeratoma 297
Symptoms 297
Etiology and Pathology 297

CHAPTER PAGE
Diagnosis 297
Treatment 297
Angioma Serpiginosum 297
Symptoms 297
Etiology and Pathology 298
Diagnosis 298
Treatment 298
Prognosis 298
Progressive Pigmentary Dermatosis (Schamberg's Disease) 298
Symptoms 298
Etiology 299
Diagnosis 299
Treatment 299
Raynaud's Disease 299
Symptoms 299
Etiology 300
Diagnosis 300
Treatment 300
Prognosis 300

XVII. DYSTROPHIES 302
Scleroderma 302
Generalized Scleroderma 302
Morphea 304
Etiology and Pathology 304
Diagnosis 304
Treatment 305
Prognosis 305
Sclerema Neonatorum 305
Symptoms 305
Etiology and Pathology 306
Diagnosis 306
Treatment 306
Prognosis 307
Edema Neonatorum 307
Symptoms 307
Etiology and Pathology 307
Dermatitis Exfoliativa Neonatorum (Ritter's Disease) . . 307
Symptoms 307
Etiology 308
Diagnosis 308
Treatment 308
Prognosis 309
Hereditary Edema of the Legs (Milroy's Disease) . . 309

CHAPTER PAGE
Keratosis Follicularis 309
  Symptoms 309
  Etiology 310
  Diagnosis 310
  Treatment 311
  Prognosis 311
Keratosis Follicularis Contagiosa 311
Acanthosis Nigricans 311
  Symptoms 312
  Etiology 312
  Diagnosis 312
  Treatment 312
  Prognosis 312

XVIII. NEW GROWTHS 315
Keloid 315
  Etiology 315
  Treatment 315
  Prognosis 316
Cicatrix (Scar) 317
  Etiology and Pathology 317
  Treatment 318
Verrucæ (Warts) 318
  Symptoms 318
  Course 320
  Etiology and Pathology 320
  Treatment 321
Callositas 324
Clavus 324
Molluscum Contagiosum 325
  Symptoms 325
  Course 326
  Etiology and Pathology 326
  Diagnosis 327
  Treatment 327
  Prognosis 327
Lipoma 327
  Symptoms 327
  Etiology and Pathology 328
  Diagnosis 328
  Treatment 328
  Prognosis 328
Xanthoma 329
  Symptoms 329

CHAPTER PAGE
Etiology 330
Diagnosis 331
Treatment 331
Prognosis 331
Malignant New Growths 331
Epithelioma 331
Sarcoma 331
Multiple Pigmented Sarcoma 334
Melanoma 334
Diagnosis 334
Etiology 334
Treatment 335
Prognosis 335

XIX. DISEASES OF THE MUCOUS MEMBRANES 338
General Considerations 338
Lingua Geographica 338
Symptoms 338
Etiology 339
Diagnosis 339
Treatment 339
Prognosis 339
Fordyce's Disease 340
Etiology 340
Treatment 340
Black Tongue 340
Symptoms 340
Etiology 341
Diagnosis 341
Treatment 341
Prognosis 341
Furrowed Tongue 341
Herpetic Stomatitis 342
Symptoms 342
Etiology 342
Diagnosis 342
Treatment 342
Prognosis 342
Thrush 343
Symptoms 343
Etiology 343
Treatment 343
Perléche 343
Symptoms 343

CHAPTER PAGE
Etiology 344
Diagnosis 344
Treatment 344

XX. FORMULARY 346
Soothing Remedies 346
Lotions 346
Baths 347
Powders 347
Ointments 347
Pastes 347
Antipruritics 348
Stimulating Remedies 348
For Acne and Folliculitis 348
Antiseptics 349
White precipitate ointment 349
Alibour water 349
Parasiticidal Remedies 349
For Dermatophytosis 349
For Seborrheic Eczema 349
For Scabies in Children 350
For Pediculosis of Scalp 350
For Tinea Capitis 350
For Alopecia Areata 350
For Hyperidrosis 350
For Dandruff 350
Bleaching Remedies 351
For Freckles 351

INDEX 353

ILLUSTRATIONS

FIGURE PAGE

1. Nevus vascularis of flat type (port wine mark) 2
2. Nevus vascularis of raised type (hemangioma) 3
3. Nevus vascularis of raised type (hemangioma) 4
4. Nevus pigmentosus et pilosus 6
5. Nevus fibrosus 7
6. Nevus pigmentosus et verrucosus 8
7. Nevus pigmentosus et pilosus of "bathing trunk" type . . . 9
8. Nevus pigmentosus et pilosus of "bathing trunk" type 10
9. Nevus linearis of papillomatous type 10
10. Ichthyosis of universal and moderately severe type 14
11. Ichthyosis of severe type, resembling skin of a reptile 15
12. Xeroderma pigmentosum 20
13. Adenoma sebaceum in a girl of low mentality 23
14. Adenoma sebaceum 24
15. Urticaria pigmentosa 29
16. Urticaria pigmentosa 30
17. Dermatitis actinica 39
18. Dermatitis actinica 40
19. Dermatitis venenata from poison ivy, with vesicles and intense edema 43
20. Dermatitis venenata from poison ivy, with vesicles and intense edema 44
21. Dermatitis venenata from poison ivy, showing numerous unruptured vesicles and large bullæ 45
22. Rhus toxicodendron (poison ivy) 46
23. Primula obconica (primrose) 46
24. Dermatitis medicamentosa from ingestion of bromids 49
25. Dermatitis medicamentosa in a nursing infant whose mother had taken bromids 50
26. Dermatitis medicamentosa from ingestion of iodids 51
27. Dermatitis medicamentosa (serum rash) following injection of diphtheria antitoxin 53
28. Livedo reticularis 57
29. Erythema multiforme of "iris" type showing concentric circles 60
30. Erythema multiforme of bullous type 61
31. Purpura 67
32. Urticaria factitia (dermographism) 75
33. Herpes simplex (cold sore) 85

FIGURE PAGE
34. Herpes simplex (cold sore) of bilateral and extensive distribution 86
35. Herpes zoster 88
36. Herpes zoster of dorsal and abdominal distribution 89
37. Hydroa vacciniforme showing crusts and scars on exposed parts . 95
38. Hydroa vacciniforme 96
39. Pemphigus vulgaris 99
40. Dermatitis herpetiformis of papular type 103
41. Dermatitis herpetiformis 104
42. Eczema of vesicular and crusted type 108
43. Eczema of vesicular and oozing type with numerous crusts . . 109
44. Eczema 110
45. Eczema of vesicular and oozing type with numerous crusts . . 111
46. Eczema of vesicular and crusted type 113
47. Psoriasis of severity not often seen in childhood 125
48. Psoriasis showing frequent site of lesions near border of scalp . 126
49. Pityriasis rosea showing usual location on trunk 138
50. Lichen planus 142
51. Pityriasis rubra pilaris of almost universal type 146
52. Pityriasis rubra pilaris 148
53. Pediculosis capitis 154
54. Pediculus capitis (head-louse) 155
55. Scabies 163
56. Scabies 164
57. Acarus scabiei (itch-mite) 165
58. Kerion 176
59. Tinea circinata (ringworm) 177
60. Tinea circinata (ringworm) showing concentric circles . . . 178
61. Ringworm fungus in hair 181
62. Ringworm fungus from finger nails showing profuse amounts of mycelium 181
63. Temporary alopecia produced by the Roentgen rays in the treatment of ringworm 185
64. Temporary alopecia produced by thallium acetate in the treatment of ringworm 185
65. Favus 189
66. Favus 190
67. Impetigo contagiosa 205
68. Impetigo contagiosa 206
69. Impetigo contagiosa showing uncommon circinate type . . . 208
70. Impetigo 209
71. Ecthyma 211
72. Pemphigus neonatorum 212
73. Granuloma pyogenicum 221
74. Lupus vulgaris 225

FIGURE PAGE
75. Lupus vulgaris 226
76. Tuberculosis verrucosa cutis 230
77. Tuberculosis orificialis 231
78. Scrofuloderma 232
79. Scrofuloderma 233
80. Scrofuloderma 234
81. Erythema induratum 235
82. Leprosy of nodular type and moderate severity 245
83. Hypertrichosis of congenital type, often associated with concealed spina bifida 251
84. Alopecia congenita 253
85. Alopecia areata 258
86. Alopecia areata 258
87. Alopecia areata 259
88. Alopecia areata 260
89. Canities (grayness) of partial type which is often hereditary or familial 262
90. Onychauxis 264
91. Pachyonychia congenita, associated with cutaneous changes . . 265
92. Onychomycosis 269
93. Lentigo (freckles) with coalescence of lesions on lip, suggesting appearance of mustache 287
94. Vitiligo 290
95. Vitiligo 291
96. Vitiligo 292
97. Depigmentation, probably temporary, following impetigo . . . 293
98. Acanthosis nigricans showing pigmentation and rugous surface in a characteristic location 312
99. Keloid following a burn 316
100. Verruca vulgaris (common wart) 319
101. Verruca vulgaris (common wart) 320
102. Verrucæ (warts) of skin and mucous membrane 321
103. Verruca plana juvenilis (flat wart) before treatment 322
104. Verruca plana juvenilis after internal administration of mercury 323
105. Molluscum contagiosum 325
106. Molluscum contagiosum 326
107. Xanthoma 330
108. Lymphoblastoma 332
109. Lymphoblastoma 332
110. Sarcoma 333
111. Lingua geographica 339
112. Lingua geographica 339

DISEASES OF THE SKIN

CHAPTER I

CONGENITAL ABNORMALITIES

NEVI

The ordinary conception of nevus or birthmark is that of a circumscribed lesion, appearing at birth and remaining unchanged throughout life. As a matter of fact the majority are not present at birth and may not even appear in infancy or childhood.

Symptoms.—Nevi are extremely common, nearly every individual having one or more of them. They vary greatly in size, shape and number. They may be single or multiple and often cover large surfaces of the body. They may be irregularly situated, are not infrequently unilateral and in some cases have a linear configuration.

Several types of nevi may occur in the same individual or a certain lesion may consist of two or more kinds of tissue. Nevi are vascular (composed of blood or lymphatic vessels), pigmented, hairy, fibrous, verrucous or lipomatous. The most frequent combination of these types is the hairy and pigmented lesion. Nevi usually remain stationary, after attaining a certain size. They rarely cause any subjective symptoms and with few exceptions constitute nothing more than cosmetic defects. Some types of vascular nevi may occasionally cause severe hemorrhage as a result of traumatism or may ulcerate. An exceedingly small number of pigmented moles ultimately become malignant.

In the broad sense, congenital or developmental malformations, such as ichthyosis or urticaria pigmentosa, are nevi. Such conditions will be considered in a later chapter. Only those will be described at present which correspond to the definition of nevi given by Darier, "circumscribed deformities of the skin of embryonic or developmental origin, appearing at any age and taking a very slow course." Numerous classifications have been suggested for nevi. Some of them are scientifically accurate but not convenient for practical purposes. For the sake of simplicity the subject may be divided into vascular and pigmentary nevi.

Vascular Nevi

The term vascular nevus includes lesions of lymphatic as well as of blood-vessels, although the name usually suggests the latter. Vascular nevi may be of two general types, flat or raised, an important distinction from the standpoint of prognosis and treatment.

The ordinary flat nevus, *nevus flammeus,* or "port wine mark," is fortunately not common in its most marked form. Its appearance is familiar to every one. The name port wine mark is not always applicable, as all shades of red are represented and the color changes at different times. Anything which increases congestion, such as exertion, crying or lowering the affected parts, heightens its color. This type of nevus appears either at or shortly after birth. It is more or less sharp in outline and of irregular shape. At the margin of a large patch are often found small satellite lesions. The size varies from a pinhead to areas covering a considerable

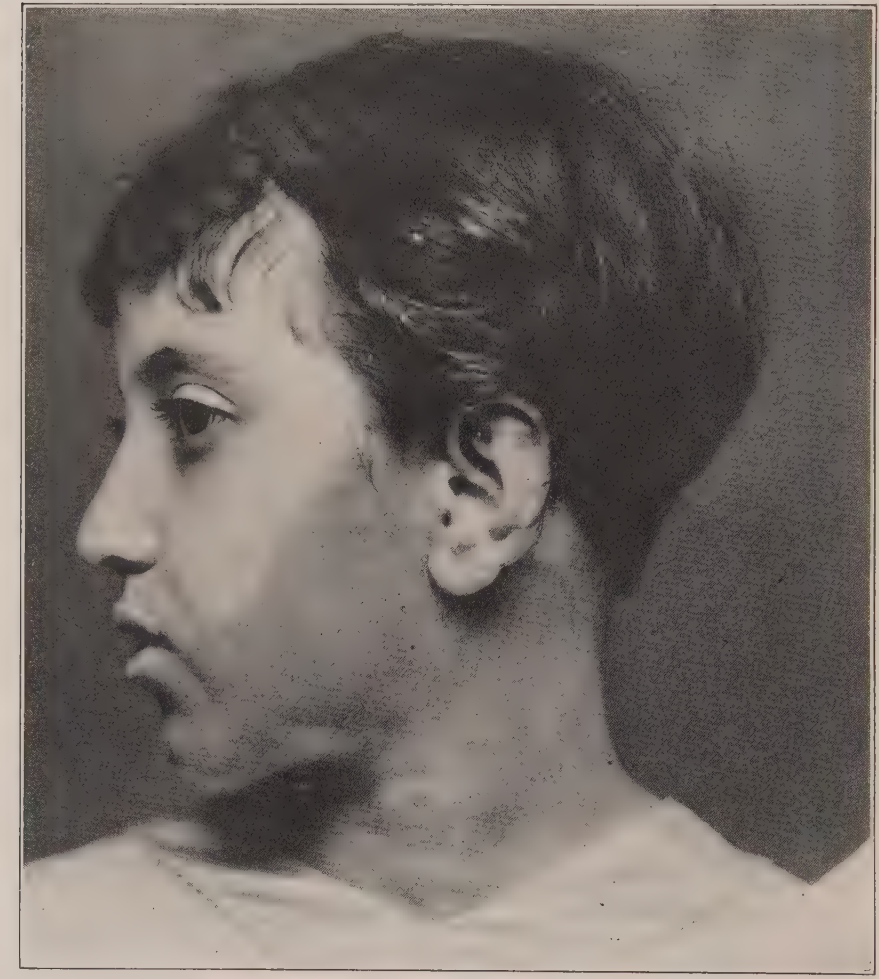

FIG. 1.—NEVUS VASCULARIS OF FLAT TYPE (PORT WINE MARK).

portion of the body, such as the face and neck. In these, as in other localities, the lesions are often unilateral. At times the mucous membrane of the mouth is involved. The surface is smooth as a rule, though some cases present papillary or even decidedly verrucous elevations. Close observation shows the lesions to be composed of a network of dilated capillaries. On diascopic pressure the color disappears except for a slight brownish stain. This type of birthmark remains practically unchanged through life, neither enlarging nor undergoing involution.

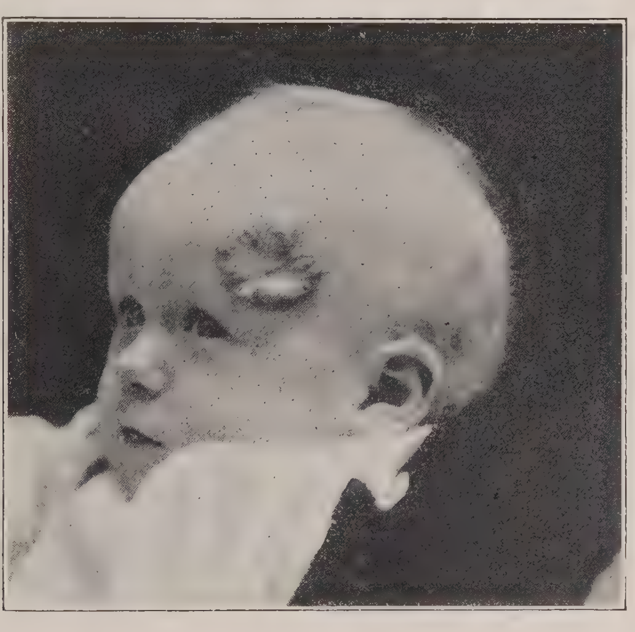

Fig. 2.—Nevus Vascularis of Raised Type (Hemangioma).

A mild type of flat vascular nevus, sometimes known as *nevus simplex,* is frequently seen on the neck of newborn infants, below the occipital protuberance. This was found independently by Depaul and by Pollitzer to occur in approximately one-third of the cases. In most of those seen by Depaul, the lesions had disappeared at the end of a month. Unna, quoted by Stelwagon, states that 10 to 20 per cent of infants present this condition, which he considers due to intra-uterine pressure. He adds that traces of it are found in adults. The latter statement is undoubtedly true, especially of women, as anyone who frequently examines female scalps will testify.

Nevus araneus, or so-called "spider nevus," is a variety of the flat vascular type. It may be congenital, though it appears more often in older children, especially near the age of puberty. Its size varies from a pinhead to a split pea. It consists of a central flat or slightly elevated center from which the telangiectatic vessels radiate in an irregular manner suggesting the legs of a spider. The favorite sites are the nose and cheeks, especially below the eyes. It usually persists indefinitely without change.

The raised type of nevus, known as *angioma, hemangioma,* or "strawberry mark," is of more frequent occurrence than the well-marked types of flat nevi. It appears at birth or shortly after and consists, as a rule, of a single lesion though it may be multiple. It varies in size from a split pea to that of the palm and in rare instances is considerably larger. It is round, oval or irregular in shape and elevated. The color is some shade of red, which becomes more intense on exertion. The lesion is more or less compressible and may even pulsate, though no sound is heard on auscultation. The border is well defined and the surface is usually smooth. At times there may be papillary elevations or there may be an admixture of lymphangiomatous tissue. Angioma occurs most often on the face or scalp, though it may be seen on any part of the surface including the mucous membranes. In the type known as *cavernous angioma* there may be only slight elevation with ill-defined border. The lesion has a bluish appearance which is often barely perceptible and is frequently lobulated.

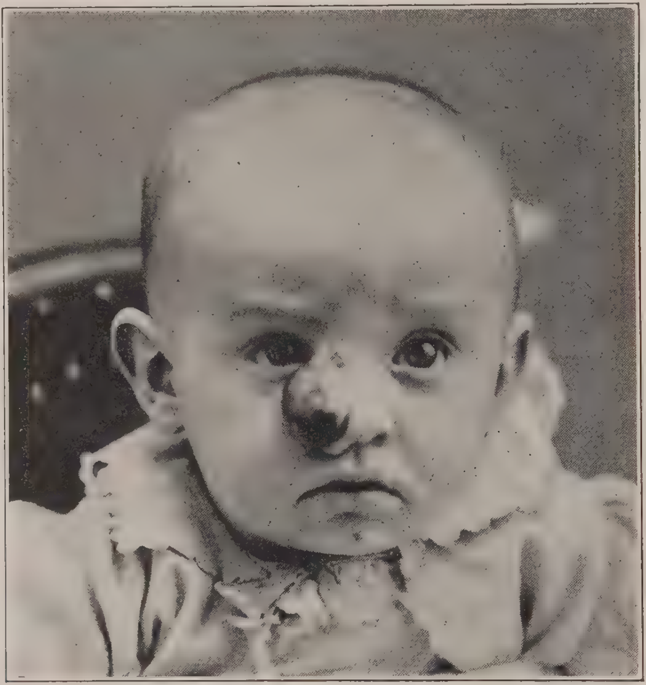

FIG. 3.—NEVUS VASCULARIS OF RAISED TYPE (HEMANGIOMA).

Angioma may bleed profusely from traumatism, undergo thrombosis and as a result disappear spontaneously. Following traumatism there may be ulceration and infection with ordinary pyogenic cocci.

In regard to the ultimate course of ordinary angioma, my opinion differs from that expressed in most textbooks. The majority state that this form of nevus only occasionally or rarely undergoes involution. I feel convinced that the great majority of these lesions actually do undergo more or less complete involution before adult life is reached. Such lesions are fairly common in infants and children, but are decidedly rare in adults. As it hardly seems possible that all of them are treated or even seen by the physician, the conclusion that they disappear spontaneously seems logical. Cavernous angiomata as a rule do not disappear in this manner. When they are encapsulated they may continue to grow slowly but steadily, and like an aneurysm may cause pain and destruction of tissue, including cartilage and bone.

Nevus anæmicus is a rare form of birthmark which is the antithesis of nevus flammeus. It was first described by Vörner, the first case in this country being reported by J. E. Lane. The affection consists of small, irregularly shaped areas of skin which are white from lack of blood-vessels or disturbance in their innervation. It differs from ordinary vitiligo in the absence of a hyperpigmented border. The differentiation from localized albinismus is given under that disease.

Lymphatic Nevi.—The rare condition known as *lymphangioma circumscriptum* is a nevus which may be present at birth or appear in infancy or early childhood. It consists of small aggregated groups of yellowish or grayish, rather tough and somewhat translucent papulovesicles, some of which are hemorrhagic. The surface is often more or less rough and warty. The eruption usually consists of several small patches with intervening normal skin, the entire area being no larger, as a rule, than a hand. It may occur on any part of the body, but has been noted most often on the neck, the upper part of the trunk or the proximal part of the limbs. It is persistent, is apt to be slowly progressive and causes no subjective symptoms.

Pigmentary Nevi

Pigmentary nevi may be conveniently divided into the flat, raised and linear types. They are popularly spoken of as moles. Like the vascular types, they may be present at birth or may not appear until a few months later. Their first appearance may be in adult life.

Pigmented nevi vary enormously in number, size, distribution and general appearance. There may be one or two, or in rare cases hundreds

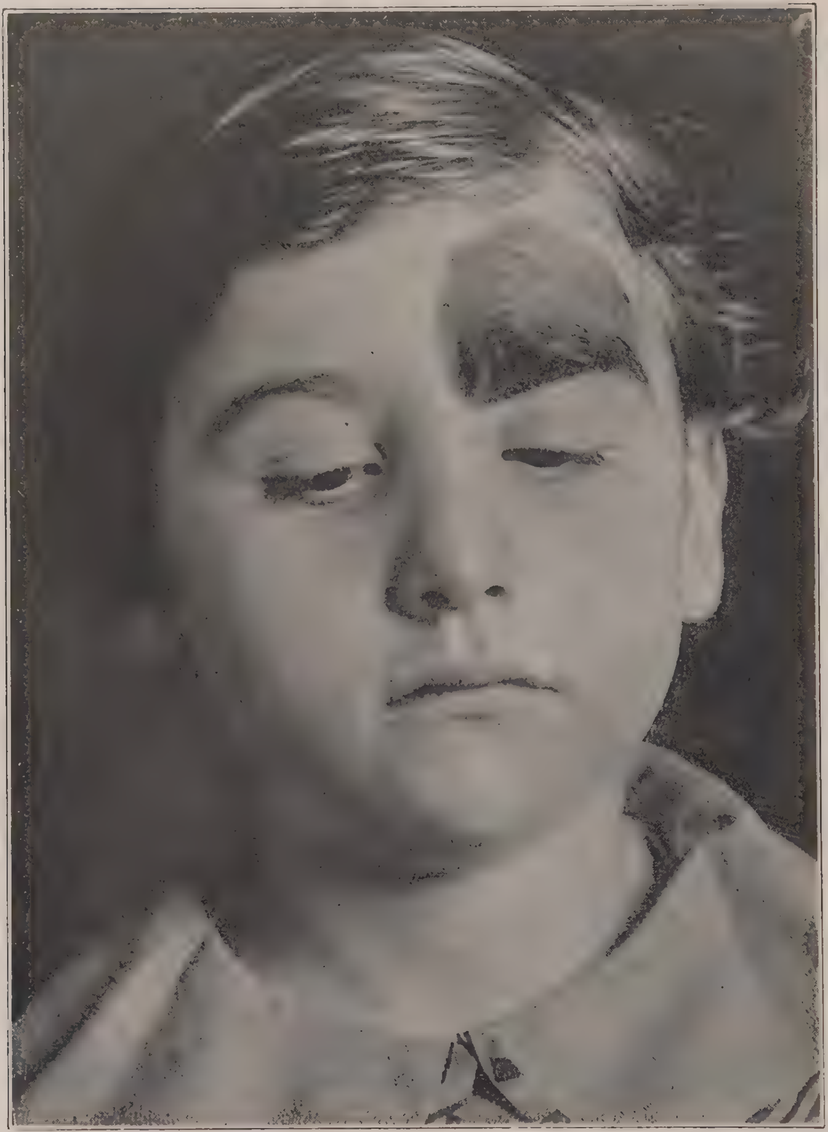

FIG. 4.—NEVUS PIGMENTOSUS ET PILOSUS.

of them. Occasionally, they may occupy large surfaces of the body. They are most frequently seen on the face, neck and back, but may appear anywhere. They are usually asymmetrical and may be unilateral. Their color varies from a light yellowish-brown to a deep yellowish-black.

The simplest form of pigmentary nevus is a small area showing nothing but an increased amount of pigment, *nevus spilus*, from the Greek word meaning a spot. When in addition to the pigment, more or less hair is present, it is called *nevus pilosus,* from the Latin, *pilus,* a hair. As a rule the structure becomes more varied in direct proportion to the size of the nevus. Some show a papillomatous or verrucous surface, while others have an admixture of fat. When the papillomatous or warty elevations are marked, there is frequently an offensive odor from decomposition of the secretion.

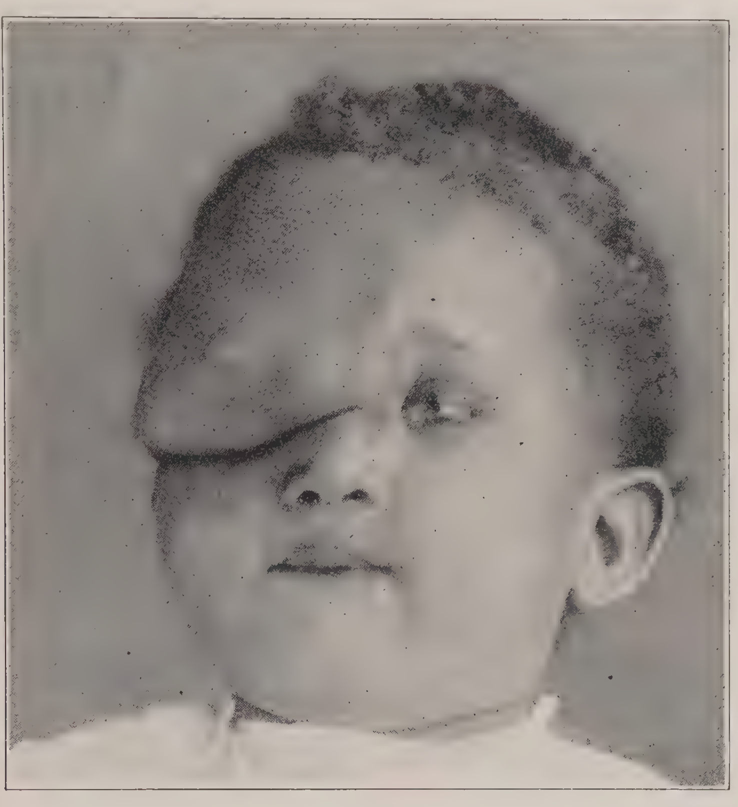

Fig. 5.—Nevus Fibrosus.
The lesion is also pigmented and somewhat hairy.

A striking appearance is presented by the so-called giant nevus, which is fortunately rare. Such cases cover large areas of the body, and at times their distribution is that of a pair of bathing trunks. I published such a case in 1912 and at that time was able to collect reports of twenty-five similar cases. The patient showed, in addition to the extensive bathing trunk area, numerous small pigmented and hairy moles scattered over the face and extremities. There were also fatty tumors (*nevus lipomatodes*) about the genitals which were later removed by excision. Even such extensive nevi do not ordinarily cause much inconvenience, though one of the patients, observed in Austria, complained of the occasional presence of fleas.

The common elevated type of pigmentary mole is round or oval in shape, semisolid in consistence, and either sessile or partly pedunculated. It may be smooth or covered by hair. Some of these lesions cannot strictly be classed as pigmented moles, as their color is that of the normal skin. It is convenient, however, to include them in this group. Pigmented nevi may show a tendency to become more hairy or verrucous with age but do not as a rule increase in extent after they have become established. The tendency to malignancy will be discussed in the section on treatment.

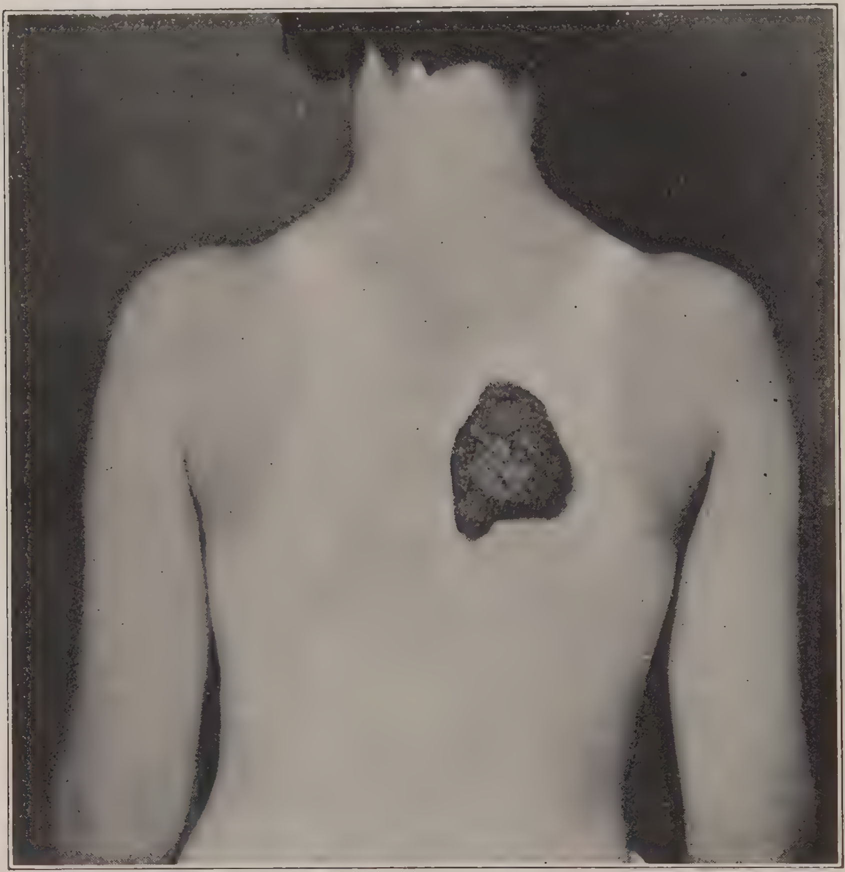

FIG. 6.—NEVUS PIGMENTOSUS ET VERRUCOSUS.

Nevus linearis is an uncommon type of birthmark. It consists of papillomatous and verrucous elevations appearing as light to dark brown, continuous or interrupted streaks of different length and width. It may be symmetrical or unilateral. In the latter case it is spoken of as *nevus unius* *lateris,* though, strictly speaking, other nevi such as port wine mark may also be unilateral. When present on the extremities, the linear streaks are parallel with the long axis, on the trunk they lie horizontally or obliquely, and on the face they are irregularly situated. Extensive areas, which are rare, often form striking and bizarre patterns. The appearance may suggest linear lichen planus, or herpes zoster. At times the mucous membranes may be involved. This form of nevus progresses slowly at first, then remains stationary throughout life.

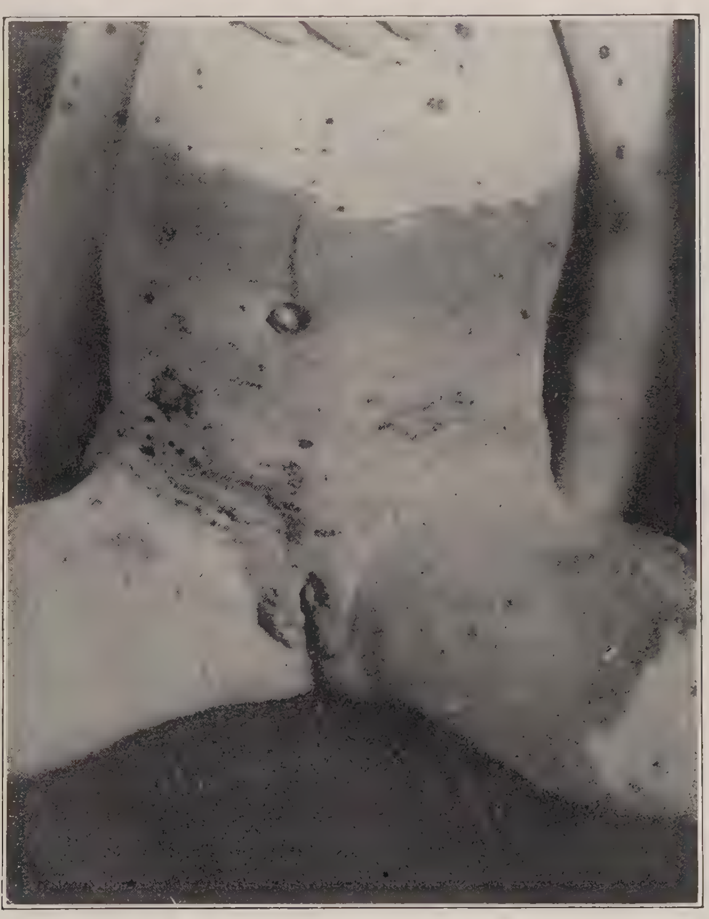

FIG. 7.—NEVUS PIGMENTOSUS ET PILOSUS OF "BATHING TRUNK" TYPE.

Diagnosis.—The clinical recognition of nearly every type of nevus is easy. Lymphangioma may, however, require histological examination for its positive identification. Ormsby, quoting Anderson, mentions the fact that frontal encephalocele (due to failure of ossification of the ethmoid and frontal bones at the root of the nose) may be mistaken for angioma. Death has followed operation in such cases. The symptoms pointing to frontal encephalocele, he says, are lobulation, great and complete vascularization of the smooth and glossy skin of the tumor, and a double pulsation.

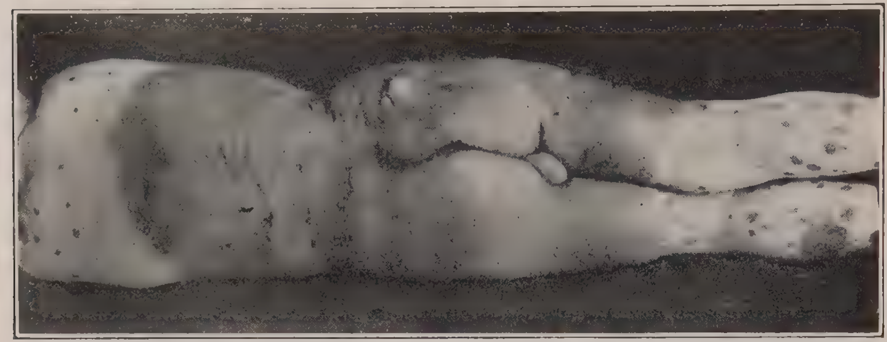

Fig. 8.—Nevus Pigmentosus et Pilosus of "Bathing Trunk" Type. Female child with lipomatous nevi resembling testes.

Etiology and Pathology.—The cause of birthmarks is unknown and all of the various theories suggested for their origin are merely speculative. The hereditary nature of nevi is evident and a familial tendency is often present. The idea that they are caused by maternal impressions has no scientific basis, in spite of the firmly rooted conviction of many women. In one of my cases of extensive hairy and pigmented moles, the mother had always been convinced that the sight of a tiger in a men-

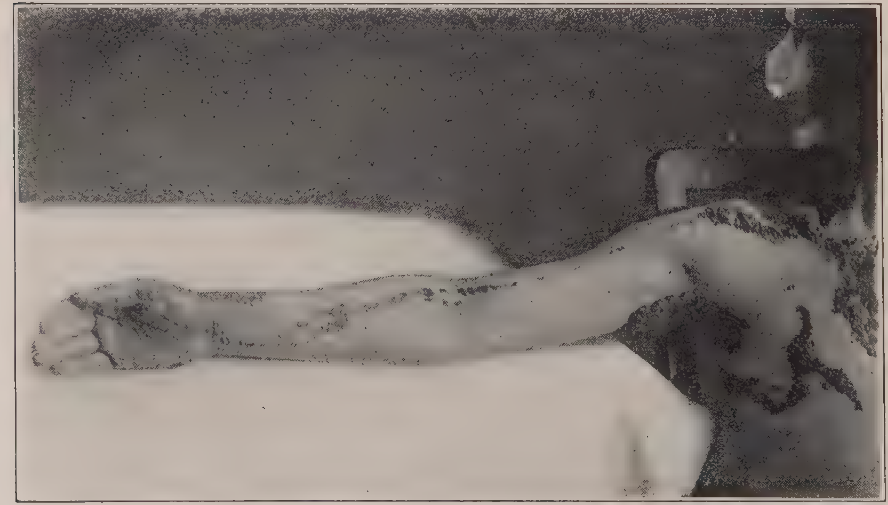

Fig. 9.—Nevus Linearis of Papillomatous Type.

agerie during her pregnancy was responsible for her child's misfortune. Nevi may represent embryonal cell inclusions or intra-uterine trauma or simply atavism. Some suggestions for the cause of linear nevus are that they follow the course of nerves or blood-vessels, the lines of cleavage, Voigt's boundary lines, the metameric segments (of Head), or the lines of fusion of embryonic clefts. The reader may decide which theory is most reasonable. All are purely hypothetical and unproven.

Histologically the ordinary vascular nevi consist of dilated and hyperplastic capillaries situated in the upper layers of the corium. The cavernous angiomata consist of sinus-like distentions in the cutis and hypoderm, resembling the tissues of the corpus cavernosum. Nevus araneus is a telangiectasia or simple dilation of preëxisting vessels or possibly at times of new vessels. Nevus anæmicus is due to absence of blood-vessels or disturbance of their innervation. Some, though not all forms of pigmentary nevi, contain what are known as "nevus cells." These are round or polyhedral cells of the epithelioid type, lying in nests, columns or strands in the cutis. According to Unna, they are derived by snaring off groups of rete cells.

Treatment.—The treatment of small flat vascular nevi is fairly satisfactory, though it is impossible to effect a cure without causing at least some slight scarring. For this purpose electrolysis, carbon dioxid snow or the Kromayer lamp may be used. In this case, as in all cosmetic defects, the utmost pains must be taken to avoid unnecessary scarring which might be considered more disfiguring than the original blemish.

Nevus araneus is easily removed by the electrolytic needle or a fine pointed cautery applied to the central capillary loop. The necessary current of two or three milliamperes for electrolysis may be obtained from ordinary house current through a small transformer. The needle is attached to the negative pole and is inserted in the lesion, after which the circuit is completed by placing the sponge electrode (positive pole) on the palm or other convenient place. The needle is held in position until the lesion is blanched, which requires a varying number of seconds, according to the strength of the current. Care should be taken not to overtreat the lesion and produce scarring.

Treatment of an extensive port wine mark is, however, another matter. For this purpose the Kromayer lamp and radium (in flexible cloth applicators) have given the best results. No conservative physician would dream of promising a perfect removal of an extensive lesion. I am not even convinced that he should promise positive improvement. It is true that the lesion may be made paler by treatment but the difficulty lies in making the original blemish uniformly paler. Whether the Kromayer lamp or radium is used, it is always difficult to avoid at least a suggestion of patchwork after the treatment is completed. I recall a case treated by a colleague with the Kromayer lamp, in which the result was perfect. Some other cases have been presented before our dermatological societies as supposedly good results, which in my opinion were worse than the original defect. Every layman recognizes a port wine mark and knows that it is harmless. Almost every layman is equally suspicious about scars such as those which are sure to follow injudicious treatment and which may occur in the hands of the most skillful. I agree with Stelwagon that when the nevus is "at all of extensive area, the outlook is unpromising and usually the effort inadvisable."

Treatment of an ordinary angioma, even though it is only slightly elevated, is not difficult. Such cases respond most satisfactorily to refrigeration or to the use of radium. For these smaller lesions nothing is simpler or more effective than freezing for thirty seconds or more with an ordinary pencil of carbon dioxid snow. The treatment should cause enough reaction to form blisters with subsequent crusting and may be repeated after a rest of a few weeks. It is my practice to wait at least a month. Usually, two or three treatments cause the redness to disappear and lessen the swelling. There is eventually little or no trace of the original defect. A convenient instrument for freezing is the cryocautery (Lortat-Jacob), though other similar apparatus is obtainable. This utilizes a mixture of carbon dioxid snow and acetone, the cold being conducted through the copper applicator. For the more extensive angiomata, especially those of cavernous type, radium is the agent of choice.

For nevus anæmicus, nothing can be done. Lymphangioma may be successfully treated by radium or other destructive agents.

Treatment of pigmentary nevi is fairly satisfactory provided they are not too extensive. It is never possible to remove them without some scarring. A number of destructive methods may be used, including electrolysis, freezing, endothermy, radium therapy and cauterization (actual cautery or chemical caustics). For small pigmented nevi, I would prefer freezing by means of the cryocautery (which is supplied with a sharp pointed applicator) or would use trichloracetic acid. Carbolic acid is less effective and nitric acid and acid nitrate of mercury are liable to cause keloidal scars. When hairs are present, they must be removed by the electrolytic needle. Larger lesions are perhaps best treated by freezing with carbon dioxid snow or by the cryocautery. They may also be excised with a wide and deep margin, followed by skin-grafting if necessary.

For small elevated moles, I prefer the actual (electric) cautery, though electrolysis is equally efficient. Its use is, however, more time consuming and consequently less agreeable to the patient. Local anesthesia may be used. Linear nevi, if not too extensive, are best treated by the actual cautery or endothermy. The extensive pigmentary nevi of any type are not amenable to treatment.

Considering the enormous frequency of pigmentary nevi, the number of infants or children who are brought to the physician for their removal are rather small. The question is different with adults who frequently become worried about the possibility of a mole becoming malignant. Some pigmented nevi certainly undergo malignant change of a most rapid and virulent type, especially when submitted to prolonged irritation. In view of the fact, however, that the vast majority of people have one or more pigmentary moles, the number that eventually become malignant must be exceedingly small. I do not believe that it is necessary or wise to remove pigmented moles in a wholesale manner to avoid the remote possibility of cancer. Certain types of pigmentary nevi seem to be more prone than others to malignant change. I agree with Pusey that this is the "black or blue mole which may be slightly elevated or which may on the other hand be embedded in the skin and show through only as a bluish-black or coal-black spot."

ICHTHYOSIS

Ichthyosis, from the Greek word meaning a fish, refers to a congenital anomaly of the skin of varying type and severity.

Symptoms.—While undoubtedly of congenital origin, ichthyosis is not present at birth except in the severest types. All grades of severity are encountered from a simple dryness of the skin to that of thick horny plates suggesting the skin of a reptile. Simple dryness of the skin (xeroderma) which may be accompanied by slight branny scaling is not uncommon. The well-marked form known as *ichthyosis simplex* is, however, rare. In this type there is an almost universal involvement of the skin, which is covered with quadrangular or diamond-shaped scales, suggesting those of a fish. The scales are attached at the center and are free at the border and are frequently shed upon the clothing. Some of the well-marked cases have been found among circus freaks under such titles as the "Alligator Boy" and the "Man Fish of Tennessee." The condition is most marked on the regions where the skin is naturally rough, such as the extensor aspect of the extremities. The flexor surfaces and axillæ are not affected except in severe cases. The face usually shows more or less fine scaling. The general color is grayish or dirty brownish in the more severe cases. The skin lacks elasticity and there is a noticeable absence of secretion of the sweat and sebaceous glands. It becomes easily chapped

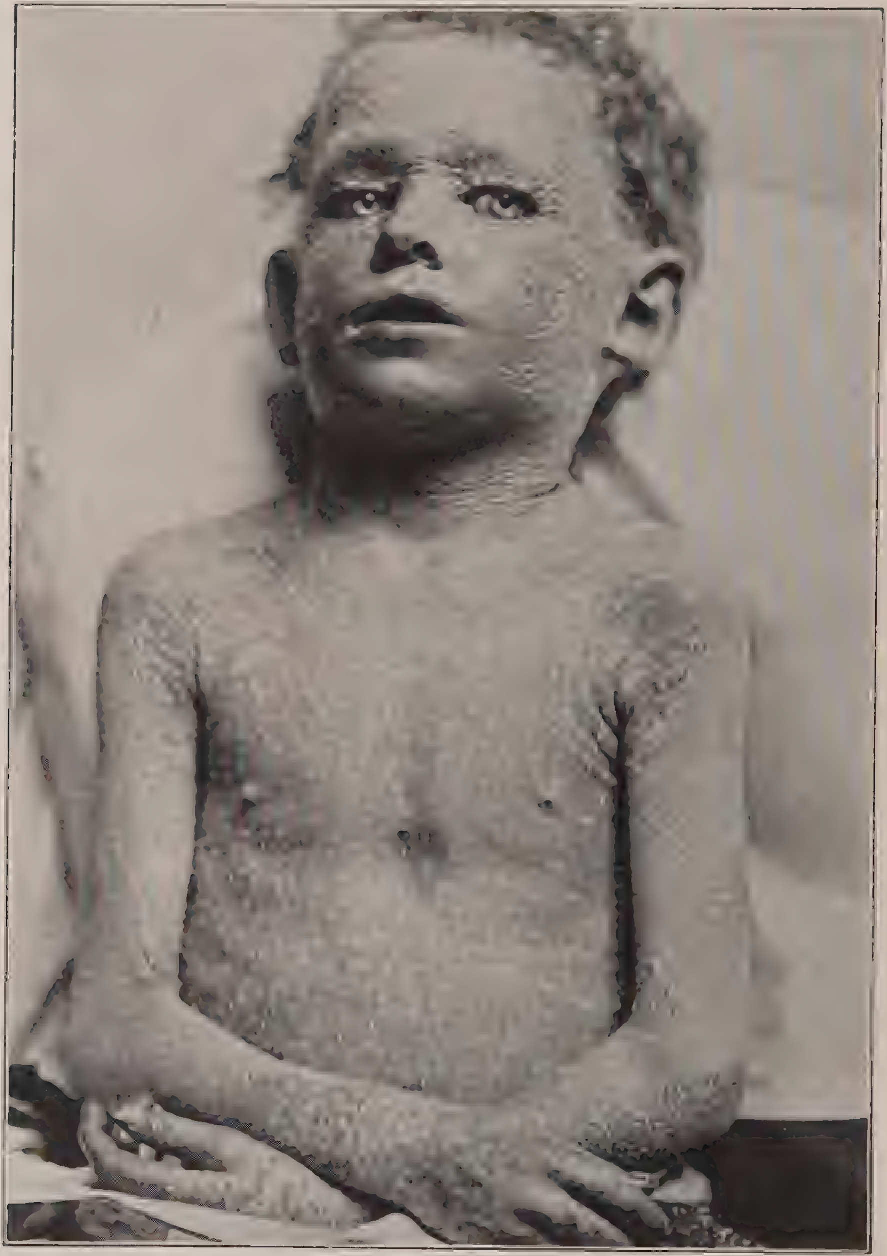

Fig. 10.—Ichthyosis of Universal and Moderately Severe Type.

and is rather susceptible to external irritants. Eczematous patches are not uncommon. Uncomplicated ichthyosis does not occasion subjective symptoms.

The hair is dry and lusterless in ichthyosis, and there is usually more or less pityriasis of the scalp. The nails are brittle, opaque and dystrophic. The mucous membranes are practically never involved, a unique exception having been reported by Thibierge in which the nose and mouth were affected. The general health is only fair, children suffering from ichthyosis being usually undernourished and having less resistance than normal individuals.

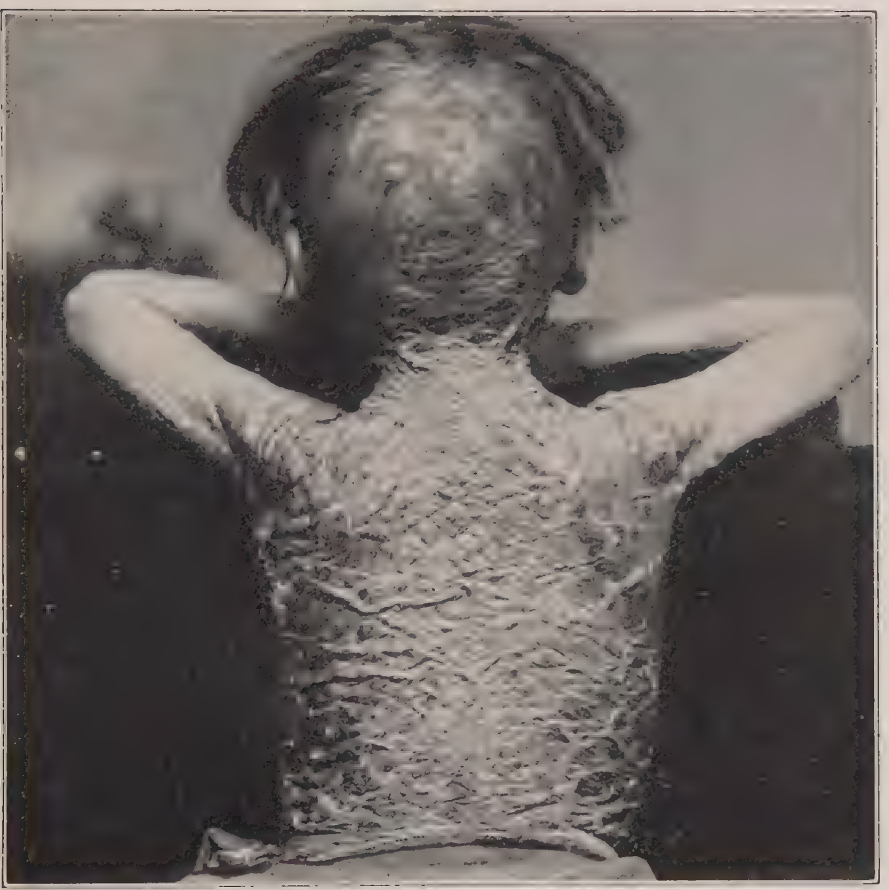

Fig. 11.—Ichthyosis of Severe Type, Resembling Skin of a Reptile.

Ichthyosis simplex does not appear until the patient is several months to two or three years of age. When once established it does not change in type and persists through life. At the period of puberty, when the sebaceous glands show an increased activity, it is said to show a slight improvement. Temporary improvement occurs almost invariably during the summer months, mild cases being hardly perceptible at such times.

While the ordinary type of ichthyosis is not essentially serious, the same cannot be said of that which appears at birth, known as *ichthyosis congenita,* "harlequin fetus," etc. In such cases the scales are large and stiff like armor plates, and death usually results in a few days or weeks from inanition, inability to nurse or possibly from some accompanying congenital disturbance of other organs. Such infants are often born prematurely.

The condition known as *ichthyosis hystrix,* from the Greek word meaning a porcupine, has been the subject of considerable difference of opinion in regard to the proper classification. It consists, as a rule, of groups of papular or horny lesions, more or less localized and separated from one another by normal skin. As to whether such cases should be considered a variety of linear nevi or a form of ichthyosis, is of little consequence, as both conditions are developmental anomalies or nevi in the broad sense. The occasional association with ichthyosis simplex favors its relationship to that condition.

The condition known as *ichthyosis sebacea* is probably due to continued production after birth of the vernix caseosa. Such cases are liable to prove as fatal as the severe types of true ichthyosis unless the scales are removed. Cases have been described in which the skin at birth resembled a layer of collodion or oiled paper. According to Bowen, they are "examples of persistence of the epitrichial layer which has usually been cast off by the seventh fetal month, but in these instances maintains its integrity up to the time of birth." In the cases which have survived, the skin has later become normal or has assumed the ordinary form of ichthyosis.

Etiology.—Ichthyosis occurs equally in both sexes and in all strata of society. The influence of heredity is marked. Gassman states that this is present in one quarter of the cases. Ichthyosis is a congenital malformation the cause of which is unknown, though certain facts point to endocrine disturbances. Thus Porter, in estimating the rate of basal metabolism in ichthyosis, found it to be decreased in 70 per cent of children and 25 per cent of adults examined, and Kingery found certain changes in the thyroid and suprarenals on necropsy.

Histologically, ichthyosis represents a peculiar anomaly of cornification. There is pure hyperkeratosis with no evidence of parakeratosis (retention of the nuclei). The rete is poorly developed and practically devoid of the granular layer of keratohyalin which is necessary for normal keratinization. Evidence of inflammatory characteristics in the cutis has been noted by some and not by others. Ichthyosis is not considered by the majority to be an inflammatory disease.

Diagnosis.—There is hardly any difficulty in the diagnosis of an uncomplicated case of ordinary ichthyosis. This is evident from the history of a scaly eruption persisting from early life, without subjective symptoms or evidence of inflammation. The differentiation of ichthyosis hystrix from linear nevus is chiefly one of academic interest.

Treatment.—Ichthyosis cannot be cured, but the patient may be made more comfortable by treatment. Internal medication, in my opinion, is of little or no value. On theoretical grounds, thyroid extract may be administered. The chief reliance must be placed on measures which remove the scales and lubricate the skin. Anything which increases perspiration, such as residence in a warm climate, exercise and hot water or vapor baths, will be beneficial. Bland toilet soaps suffice for bathing in mild cases, while in the more severe ones green soap is more efficient for removing scales. After the bath, some emollient should be rubbed into the skin, sweet almond oil being one of the most agreeable. Some patients prefer simple vaselin or vaselin mixed with equal parts or less of lanolin. In a few cases, a weak solution of glycerin and rose water is satisfactory. In the use of an emollient, a varying amount of salicylic acid may be added, 3 per cent being suitable for the mild and 6 per cent or more for the severe cases.

Closely allied to ichthyosis is the condition first described by Brocq, in 1902, as *erythrodermie congénitale ichthyosiforme,* a review of the subject being recently published by MacKee and Rosen. By some, this rare malady is thought to be a variety of ichthyosis, and by others a separate clinical entity. It is present at birth or appears a few days later. As the name would imply, there is also redness which may or may not precede the ichthyotic lesions. The redness tends eventually to lessen or to disappear entirely. There may be more or less thickening of the palms and soles and bullæ may be seen at times. Instead of being widely generalized, the affection may consist of symmetrical patches which are sharply or poorly defined. This condition is not hereditary.

KERATOSIS PALMARIS ET PLANTARIS

This rather uncommon anomaly of the skin was first described by Krost, in 1880.

Symptoms.—As a rule both palms and soles are symmetrically affected, as well as the palmar and plantar surface of the fingers and toes. In well-marked cases, the areas involved are covered with a horny layer, varying in thickness from one-sixteenth to one-eighth of an inch. In some cases it is smooth, yellowish and translucent; in others it is rough and warty, and of a dirty brownish color. The horny tissue may extend slightly upon the front of the wrists, sides of the fingers and upon the tendo achillis. The border is usually sharply marginated and shows no evidence of inflammation. In some cases there is a worm-eaten appearance due to pitting. Fissures may be present and add to the patient's discomfort. The affection may be limited to the palms and soles or be associated with ichthyosis. There may be localized hyperidrosis. Movements of the hands are often painful and walking difficult.

Etiology.—The affection may be congenital or appear during infancy or sometime in childhood. It may be delayed until adult life. The hereditary influence is prominent and many familial cases are recorded. Nineteen cases in a family during four generations have been reported by Joseph and E. P. Zeisler.

Treatment.—There is no permanent cure, though relief may be given by treatment with the Roentgen rays or sapo mollis and salicylic acid. The latter may be used in collodion, in plaster or as an ointment.

EPIDERMOLYSIS BULLOSA

Epidermolysis bullosa is a rare anomaly first described by Goldscheider, in 1882.

Symptoms.—It appears as a rule soon after birth or at least within the first or second year. The so-called acquired type is seen only in adults. The essential process consists of the formation of vesicular or bullous lesions on slight traumatism or without any apparent cause. There are mild and severe types which are so unlike as to constitute different affections in the opinion of some authorities. The bullæ are seen most often on the parts naturally exposed to traumatism, such as the hands, elbows and knees, though they may occur on any part of the body. They may or may not be preceded by a sensation of itching or tingling.

In the severe or so-called dystrophic type of epidermolysis bullosa, the involution of the bullous lesions may be followed by scarring. The nails are likely to show various dystrophies and may be destroyed. Areas of redness and scaling may be seen, especially on the hands. Milium-like cysts, particularly involving the hands and fingers, are characteristic. Considerable discomfort results from abraded areas, especially when secondary pyogenic infection is added. In rare cases, the mucous membranes of the mouth and even the alimentary tract may be involved. Vomiting and hematemesis have been observed.

The general health in the milder cases is unaffected. In the severe types some of the patients are below par physically and suffer from considerable discomfort as well as disfigurement. The disease may disappear near puberty in the mild type, while in the severe form it continues more or less indefinitely until middle age.

Etiology and Pathology.—In addition to being hereditary, epidermolysis bullosa may be familial and congenital. In a family of sixty-three, in five generations, thirty-one individuals were affected, according to a report of Bonajuti (quoted by MacLeod). Other familial groups have been recorded.

The pathological basis for the bullous formation is not as yet settled. Three possibilities are mentioned by MacLeod, including peculiar congenital lack of cohesion in the prickle-cells, excessive instability of the vasomotor control and diminution or absence of the elastic tissue. Engman and Mook were the first to note the lack of elastic fibers in both normal as well as affected skin, their observations being later corroborated by Sutton.

Treatment.—To lessen the formation of bullæ, care should be taken to avoid all unnecessary traumatism. Lesions which appear may be punctured aseptically and a sterile dressing applied.

XERODERMA PIGMENTOSUM

Xeroderma pigmentosum is a rare disease which usually begins in infancy. It was first described, in 1870, by Kaposi.

Symptoms.—The changes in the skin are comparable to those which may occur in old age or those of chronic radiodermatitis. They consist chiefly of pigmentation, atrophy, telangiectasia and malignant degeneration.

Pigmentation in the form of ordinary freckles is usually the first change to be noted. This may follow an ordinary sunburn of the face and hands or the history of such exposure may be wanting. The pigmented lesions usually appear for the first time in the spring or summer. At the outset they are limited to the exposed parts, but soon spread and involve the upper portion of the trunk and arms, and in severe cases are distributed over the entire surface. Later they become larger and darker in color and like the other changes described below, are invariably most pronounced on the uncovered parts. Pigmented lesions are also seen at times on the conjunctiva, lips and less often on the buccal mucosa.

Atrophy of the skin appears simultaneously with pigmentation, though it is not so apparent at the outset. It occurs at first as small, whitish, scarlike spots which may be smooth or wrinkled and closely aggregated. These appear in and around the freckles and gradually increase in size and coalesce. The sweat function is lessened in the atrophic areas and the skin feels dry and harsh and gives the appearance of senility. Atrophic changes may cause ectropion with resulting photophobia and lacrimation, or there may be occasional narrowing of the mouth or thinning of the nose and ears.

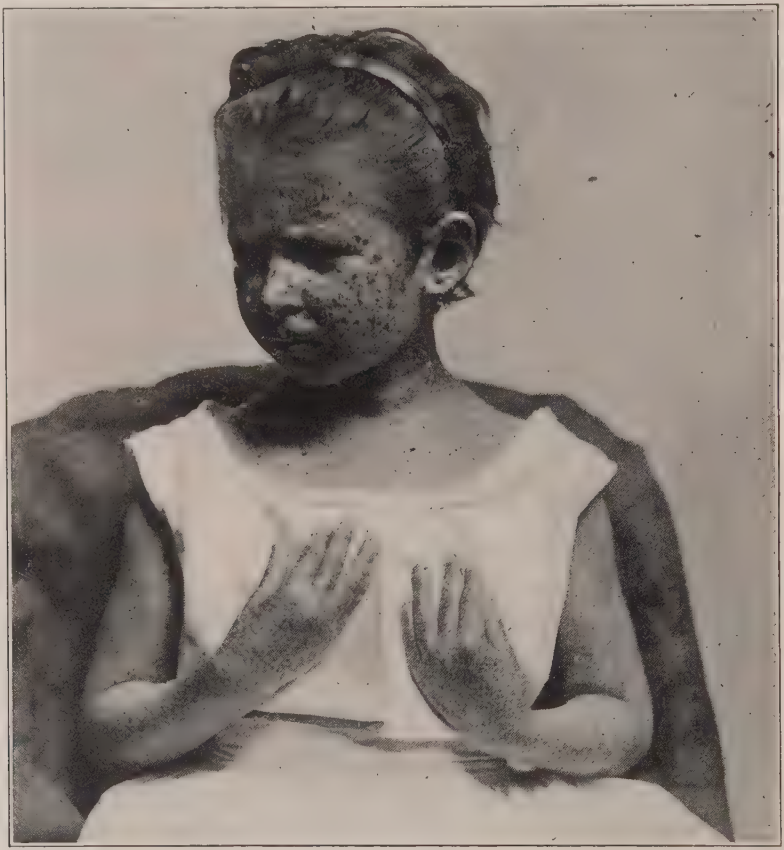

FIG. 12.—XERODERMA PIGMENTOSUM.
Extensive and moderately severe eruption on regions exposed to light.

Dilatation of blood-vessels, in the form of punctate, linear or stellate telangiectasis, may occur with the onset of pigmentation and atrophy or appear somewhat later. Eventually, small angiomata may form. The combination of the above described changes produces a mottled and variegated appearance which is striking and characteristic. There are no subjective symptoms (unless ectropion is present) and no disturbance for years in the general health. The process may continue in this form for eight or ten years, during which time it constitutes little more than a disfigurement. The stage of malignancy supervenes eventually, and the disease becomes a serious and fatal one.

The stage of malignancy is characterized by the appearance of warty and fungating papillomatous elevations, many of which become epitheliomatous. The latter are rather superficial and frequently ulcerate. They rarely involve the neighboring glands or cause visceral metastases. In the terminal stage there is frequently severe disfigurement, as a result of which the patients are apt to become mentally depressed.

The course of the disease is chronic. It is steadily progressive as a rule, though there may be occasional long periods of quiescence. The terminal stage may appear in some cases within a year or so after the onset, while in others it may be delayed for twenty or even thirty years. Few patients ever live longer than forty years. Death ensues ultimately from cachexia or intercurrent disease.

Etiology and Pathology.—Xeroderma pigmentosum is generally considered to be a congenital defect in which there is a peculiar sensibility of the skin to light. It is not infrequently seen in several members of a family, and in such cases one sex is likely to be affected. In a family of thirteen recorded by Rüder, seven brothers suffered from the disease. In general, it is seen in boys and girls with equal frequency. In some cases (11.8 per cent according to Darier), consanguinity of the parents has been noted. This was true of a young man of twenty, recently seen, whose parents were first cousins. He had suffered from xeroderma pigmentosum since infancy and presented pigmentation over a large part of the body in addition to other classic signs, including numerous epitheliomata. His brother had died of the same affection at the age of seven.

The disease begins nearly always in infancy. In exceptional cases an eruption considered to be xeroderma pigmentosum has been observed in adults of middle or advanced age. Xeroderma pigmentosum occurs in all classes of society and is not due to bad hygienic conditions.

The pathologic changes are similar to those which are seen in extremely severe types of senile atrophy of the skin, and especially in those due to excessive irradiation by the Roentgen rays or radium. The histologic changes in the pigmented, atrophic and vascular lesions show nothing unusual. The type of malignancy is nearly always a non-metastasizing superficial epithelioma, usually of the basal-cell type. Occasionally there are, in addition, sarcomatous, granulomatous or myxomatous changes.

Diagnosis.—This is hardly possible in the earliest stage of erythema. The speedy appearance, however, of frecklelike pigmentation and atrophic spots, with or without telangiectasia, and the frequent history of involvement of brothers or sisters, make the diagnosis clear. The fully developed eruption is characteristic and does not resemble any other disease of childhood, except radiodermatitis, in which the disease would not be so generalized or symmetrical. The history of onset in infancy would be conclusive. The prolonged ingestion of arsenic may at times be followed by extensive pigmentation, keratoses and epitheliomata. The pigmentation is, however, chiefly seen on the covered parts and is reticulated, while the keratotic and cancerous lesions occur mostly on the palms or soles.

Treatment.—Little can be done for this disease. As a prophylactic measure, the child should be shielded as far as possible from bright sunlight. For this purpose, remedies suggested for hydroa vacciniforme are applicable. Treatment of any existing conjunctivitis due to ectropion is in order. In the cancerous stage, active treatment should be instituted as the keratoses or epitheliomata appear. They are removed as a rule without difficulty by surgery or by electrodesiccation, curettage, radium or other methods. The progress of the affection may in this way be halted at times for years. There is no specific cure and the internal administration of drugs is useless.

Prognosis.—This is bad, all of the patients eventually dying of the disease. It is better when the process is slow and before the stage of malignant degeneration has appeared. When this has occurred, death usually follows within a few years.

ADENOMA SEBACEUM

Adenoma sebaceum is a rare disease, which may be present at birth, but usually begins in childhood.

Symptoms.—The eruption consists of a gradual growth of pinhead to small pea-sized (rarely larger) papules, which are situated principally on the face. The color may be yellowish-white or similar to that of the skin in some cases. As a rule there is a distinct reddish or reddish-brown hue. The lesions are mostly discrete, though there may be more or less coalescence, which is especially marked in the fold between the nose and cheek. The overlying skin frequently shows telangiectasia but no scaling. The favorite sites are the middle two-thirds of the face, including the side of the nose, the cheeks and the chin, less often the lower part of the forehead and rarely the scalp or other regions. The lesions are usually soft, they never ulcerate and are not accompanied by any subjective symptoms. The skin is coarse at times and shows comedones and large pilosebaceous openings. The eruption is nearly always symmetrical, though like other congenital abnormalities it has been known to be unilateral and even linear in configuration. There may be other associated abnormalities, such as fibroma, nevus, teratoma of the kidney (Crutchfield), tuberose sclerosis of the brain or viscera (Olson), syringocystoma and Recklinghausen's disease (Saphier and Kiendle). The course of the disease is slow, new lesions gradually appearing, especially about the period of puberty. They persist as a rule through life, though in rare instances involution has been noted. In many, though not in all cases, there is an impairment of mentality. This was present in a girl whose photograph accompanies this description (Fig. 13).

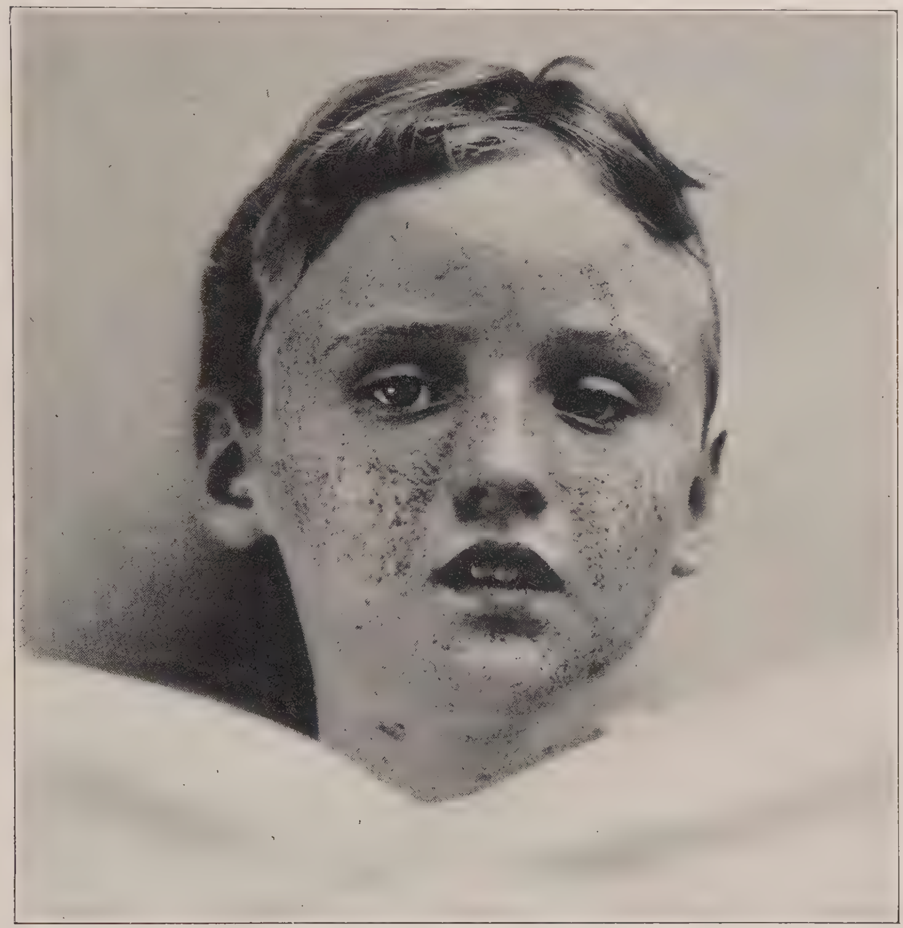

FIG. 13.—ADENOMA SEBACEUM IN A GIRL OF LOW MENTALITY.

Etiology and Pathology.—The disease is occasionally present at birth, but is usually first noticed in the later years of childhood. It is seen more often in girls than in boys and occurs as a rule in the poorer classes. It appears to be more common in England, especially in institutions for feeble-minded children. On a visit to Kings Park Hospital, a large institution for the insane, I was able to find only a single case of adenoma sebaceum. The resident physicians said that in their experience it was a rare disease among the insane. More than one member of a family may be affected, Taylor and Berendt recording three, Adamson two, and Shelmire five cases of this kind. Adenoma sebaceum is thought to belong among the congenital abnormalities even though the disease may not occur for some years after birth. According to Olson, adenoma sebaceum is a germ-plasm developmental defect of the skin, involving especially the sebaceous glands. He considers it part of a widely distributed disorder which may involve the brain.

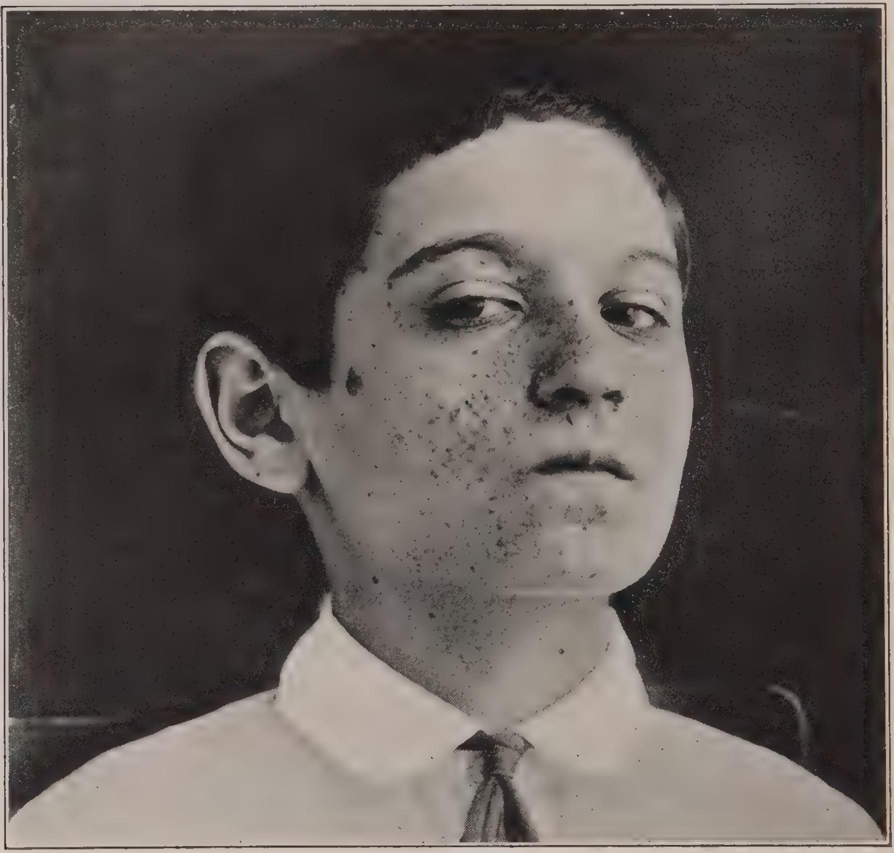

FIG. 14.—ADENOMA SEBACEUM.
Showing characteristic location on nose, cheeks and chin.

Histologically there are three varieties of the disease. The Balzer type shows chiefly hyperplasia of the sebaceous glands, while the type described by Pringle shows vascular hyperplasia in addition. In the Hallopeau-Leredde variety, there is an increase of fibrous tissue and the lesions feel harder than in the other varieties. According to Darier this should be classed as a fibrovascular nevus.

Diagnosis.—This is usually easy from the history of early onset, gradual growth and persistence of the lesions as well as their appearance and situation. Multiple benign cystic epithelioma may, however, resemble adenoma sebaceum so closely that a diagnosis is only possible by histologic examination. I have seen such cases presented in our dermatological societies where it seemed impossible to differentiate the two diseases from their clinical appearance. Multiple benign epithelioma usually appears at an older age and is seen more often on the forehead and trunk than adenoma sebaceum. In the extremely rare disease known as *colloid milium,* the lesions are distinctly yellowish in color, are few in number, and situated mostly on the upper part of the face. *Molluscum contagiosum* is easily recognized by the central depression and frequent opening from which cheesy material may be expressed. There may also be a history of contagion.

Treatment.—This is unsatisfactory. The lesions can only be removed by destructive methods such as endothermy, cauterization, curettage or excision. Scarring is the result. Ormsby states that improvement has followed the use of the Roentgen rays in several of his cases. MacKee saw no improvement after either Roentgen rays or radium.

Prognosis.—This is unfavorable as far as a cure is concerned. The eruption is slowly progressive and after a certain time may remain stationary. It persists indefinitely in nearly all of the cases.

NEUROFIBROMATOSIS

(*Recklinghausen's Disease*)

The disease known under the above title is uncommon. It begins in early life and may be present at birth.

Symptoms.—The onset is insidious and the development nearly always gradual and progressive, though at the period of puberty it may show a marked increase in activity. The disease consists of three principal groups of changes, including generalized neurofibromatosis, pigmentation and mental disturbance. Other abnormalities may be present and, on the other hand, there are incomplete forms in which one or two of the main features may be absent.

The fibromatous lesions are the most striking and consist of one or more or at times hundreds of lesions varying in size and type. The extensive and severe cases showing hundreds or even several thousand tumors are seen only in adults after the disease has existed for many years. In children the disease is usually of a mild type and may be easily overlooked. The tumors are pea-sized at the outset and may later become as large as an egg. In rare cases, immense pendulous masses are formed. The tumors are soft, hemispherical, sessile or pedunculated, covered by normal or bluish skin and as a rule entirely painless. Pressure may cause some of them to disappear through a ringlike constriction, but they reappear at once when this is released. They are most abundant on the trunk, but may occupy the greater part of the surface and even involve the mucous membranes. In addition to the usual disseminated soft fibromatous lesions, there may be localized, nodular or plexiform neurofibromata connected with peripheral nerves, such as the ulnar, radial or sciatic. In such cases, with involvement of the larger nerve trunks, the disease may cause death from sarcoma. Bruns (quoted by Ewing) estimates that this occurs in 8 per cent of the cases. Fatalities were recorded in twelve of the sixty-three families reported by Hoekstra.

Pigmentation is frequent and may precede the tumors by several years. It appears as ordinary freckles or as larger patches of different shades of yellow or brown. The mental symptoms, according to Charpentier, are present in 63 per cent of the cases, and consist of apathy, backwardness in school, speech defects, melancholia, etc. Other defects may include interference with physical or sexual development, infantilism, anomalies of hair, or nevi. Sensory disturbances, such as rheumatoid pains in the abdomen, lower back and calves, and digestive symptoms, may be present. The urine may contain albumin or sugar and the blood show a mild eosinophilia. There may be hyperplastic changes in the bones underlying the affected skin. When the vertebræ are involved there is often marked scoliosis or kyphosis.

Etiology and Pathology.—The disease is a congenital malformation of unknown cause. It is thought by some to be due to endocrine disturbance. There is a marked hereditary and familial tendency as shown in the cases collected by Hoekstra. Both sexes are equally affected. The origin of the cutaneous tumors from the connective tissue of the peripheral nerves was first definitely shown by von Recklinghausen. Histologically, the soft tumors are composed of a peculiar gelatinous type of connective tissue with fine fibers and many nuclei.

Diagnosis.—A well-marked eruption, consisting of numerous soft fibromata associated with pigmentation and mental disturbances, could hardly fail of recognition. Many cases, especially in children, are of the partial or abortive type. Lipomata in children are usually diffuse and lobulated. Neuromata are painful and sarcomata show a much greater tendency to ulceration, are not pedunculated and are reddish or violaceous in color.

Treatment.—Excision is the only means of removing the lesions and this is only feasible when they are pedunculated and few in number.

Prognosis.—This is bad as far as the cutaneous lesions are concerned. Neurofibromata tend to multiply and to persist indefinitely. Occasionally some retrogression occurs. Death may result from sarcomatous degeneration.

MULTIPLE BENIGN CYSTIC EPITHELIOMA

This disease, which is also known as tricho-epithelioma, is rare and is usually first noticed about the age of puberty.

Symptoms.—The eruption consists of a gradual formation of round or oval, firm, pinhead to pea-sized nodules which are slightly elevated above the skin. They are few in number, as a rule, usually symmetrical and often grouped. They are smooth and shiny, suggesting the appearance of vesicles and are of a pinkish, light yellowish or pearl color. The surface occasionally shows telangiectasia. The favorite site is the face, though the scalp, neck and shoulders may also be involved. Subjective symptoms are absent. After attaining a certain size, the lesions tend to remain stationary for an indefinite period. In rare instances ulceration and malignant changes have been noted.

Etiology and Pathology.—The disease is seen most frequently in females and may show a familial and hereditary tendency. It is a congenital anomaly which arises from the basal-cell layer or the epithelium of the hair-follicles.

Diagnosis.—The diagnosis is made from the appearance at puberty of firm lesions, often of a pearly appearance, which are seen chiefly on the face and in which there is often a history of family or hereditary involvement. In syringocystoma the lesions are soft, more distinctly yellowish or yellowish-brown in color and are situated usually on the trunk. The differentiation from adenoma sebaceum may be very difficult, except by histologic examination. It has been considered under that disease.

Treatment.—The lesions can only be removed by destructive methods, such as the cautery, curet, electrodesiccation or excision.

Prognosis.—The eruption persists indefinitely and in rare instances may undergo malignant change. It cannot be removed without producing scars.

SYRINGOCYSTOMA

Syringocystoma, for which there are innumerable synonyms, is an uncommon disease which often begins in childhood. The lesions are small, soft, yellowish or yellowish-brown, smooth and shiny nodules which project slightly above the surface of the skin. They are discrete and asymmetrical and are often rather profuse. The favorite site is the trunk, although the face and extremities are occasionally affected. After a certain time the lesions become stationary and persist indefinitely without causing any subjective disturbance or undergoing ulceration or malignant change.

The disease is most common in females and may begin in childhood or occasionally in infancy. It is a congenital anomaly originating possibly in embryonally misplaced sweat-glands. The treatment is similar to that of benign cystic epithelioma with the exception that it may be influenced by the Roentgen rays. In one case (adult negress), in which I treated one side of the body by this agent, there was a complete disappearance of the lesions. Others have had similar results. Ordinary destructive methods may be used, though scarring is the result.

URTICARIA PIGMENTOSA

Urticaria pigmentosa was first described by Nettleship, in 1869, as "chronic urticaria leaving brown stains." It has also been termed xanthelasmoidea. It is rare in spite of the fairly large number of reported cases, Finnerud, in 1923, being able to collect 308 cases from the literature. It is mainly a disease of infancy and childhood, though in a slightly modified form it may occur occasionally in adults.

Symptoms.—While it has been known to be present at birth, it does not appear as a rule until the third or fourth month or later. According to Little's statistics, the disease is first noted before the end of the first year in 70 per cent of the cases. Urticaria pigmentosa begins usually as an ordinary attack of hives, the individual wheals persisting, however, for several weeks and leaving pigmented spots after their disappearance. When established the eruption consists of macules or nodules or a mixture of both, the macules being by far the more frequent and characteristic. The lesions vary greatly in number. There may be a few dozen or there may be hundreds of them. The favorite sites are the covered parts, especially the trunk, although the eruption may be generalized and affect all regions of the body, including the mucous membrane of the mouth. The lesions are usually discrete, but may coalesce at times and form patches. They vary in size from a split pea to that of small coins and are round or oval in shape. While their size varies in different cases, they are more or less uniform in any individual eruption. The color is some shade of yellowish-brown. The surface of the macules is smooth while that of the nodules may be rough. Some of the lesions are occasionally capped by vesicles or bullæ.

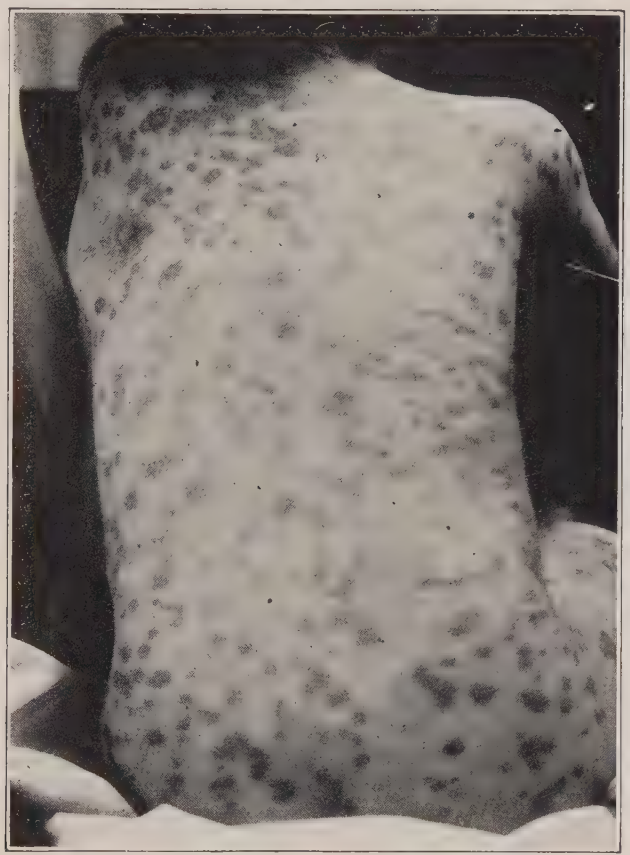

Fig. 15.—Urticaria Pigmentosa.
Showing rather profuse eruption of large-sized macules.

The characteristic sign of urticaria pigmentosa is that when the pigmented spots are subjected to vigorous friction, a certain amount of urticarial elevation takes place in the areas occupied by these lesions. More or less factitious urticaria (dermographia) may also be present. There may be a certain amount of itching which in my experience is never very noticeable. It does not cause the patient to tear the skin and is certainly not enough to interfere with the general health which seems to be uniformly good. In some cases a moderate amount of general adenopathy has been noted, even in cases without any pruritus.

The course of the disease is slow. After it is established there is often no change for years, though from time to time there may be new crops of lesions. The eruption disappears completely at or before puberty and as a rule without any trace. In a few reported cases, the lesions have disappeared in one or two years after their onset. A small amount

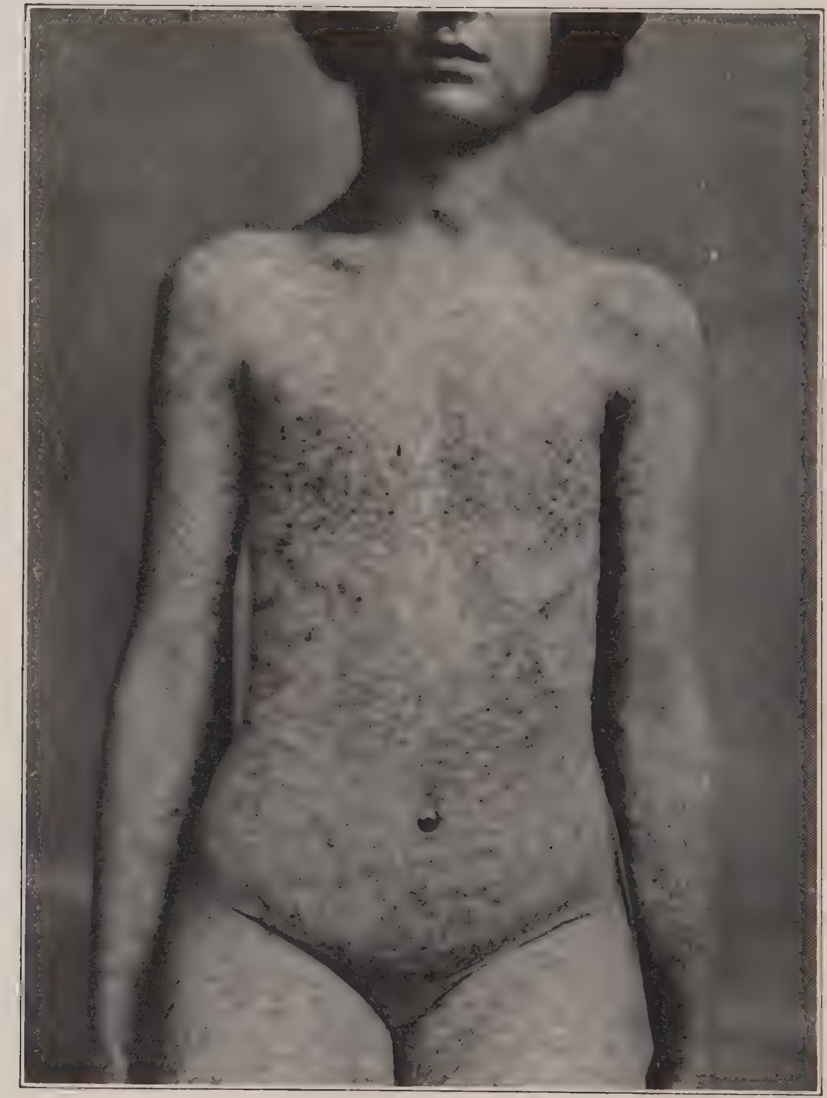

Fig. 16.—Urticaria Pigmentosa.
Showing extremely profuse eruption of small macules.

of atrophic scarring has also been observed at times to follow involution of the eruption.

Etiology and Pathology.—Urticaria pigmentosa affects boys more often than girls and is more common in those of fair complexion. It apparently represents a developmental anomaly of unknown causation. Neisser considered it to be a form of nevus.

In most cases, histological examination shows large numbers of mast-cells, which constitute a characteristic feature. These cells are situated in the corium, around the vessels of the subpapillary layer, around the follicles and sweat-glands and in the spaces between the collagen bundles. Some of them have also been noted in the apparently normal surrounding skin.

Diagnosis.—The recognition of an ordinary case of urticaria pigmentosa is not difficult in view of the history and the appearance of wheals upon the pigmented spots when friction is applied. Histologic examination in doubtful cases will often settle the diagnosis. The only difficult cases to recognize are those with nodular lesions suggesting xanthoma. In the latter disease, the nodules are distinctly yellowish, they do not become urticarial from friction and the histologic picture is characteristic.

Treatment.—Nothing can be done for urticaria pigmentosa except to relieve any accompanying itching by ordinary antipruritic remedies (see Formulary, p. 347). It is hardly more than a cosmetic defect, the greater part of the lesions being situated, fortunately, on areas covered by the clothing. After the diagnosis has been made and assurance given that the eruption will eventually disappear, there is seldom any further need for medical assistance.

BIBLIOGRAPHY

NEVUS ANÆMICUS

LANE, J. E. Nevus Anæmicus. J. Cutan. Dis., New York, 1916, 34:602.

PIGMENTARY NEVUS

FOX, H. A Case of Extensive Pigmented and Hairy Nevus of the "Bathing Trunk Type" Presenting Genital Tumors. J. Am. M. Ass., Chicago, 1912, 58: 1190.

ICHTHYOSIS

BOWEN, J. T. The Epitrichial Layer of the Epidermis and its Relation to Ichthyosis Congenita. J. Cutan. Dis., New York, 1895, 13:485.

KINGERY, L. B. Ichthyosis Congenita with Unusual Complications. Arch. Dermat. & Syph., Chicago, 1926, 13: 90.

MacKee, G. M., and Rosen, I. Erythrodermie congénitale ichthyosiforme. J. Cutan. Dis., New York, 1917, 35: 235.

Porter, A. Basal Metabolism in Ichthyosis. Brit. J. Dermat., London, 1926, 38: 475.

Zeisler, J., and Zeisler, E. P. Case report. J. Cutan. Dis., New York, 1919, 37: 262.

Epidermolysis Bullosa

Engman, M. F., and Mook, W. H. A Study of Some Cases of Epidermolysis Bullosa with Remarks upon the Congenital Absence of Elastic Tissue. J. Cutan. Dis., New York, 1906, 24: 55.

Xeroderma Pigmentosum

Rüder, W. (quoted by Neisser). Vierteljr. Ges. f. Dermat. u. Syph. 1883, 10: 47.

Adenoma Sebaceum

Adamson, H. G. Case report. Brit. J. Dermat., London, 1911, 23: 109.

Crutchfield, E. D. Adenoma Sebaceum Associated with a Teratoma of the Kidney. Arch. Dermat. & Syph., Chicago, 1920, 2: 368.

Olson, G. M. Adenoma Sebaceum and Tuberose Sclerosis of the Brain. Arch. Dermat. & Syph., Chicago, 1922, 6: 21.

Saphir, J., and Kiendle, W. A Combination of Adenoma Sebaceum, Neurofibromatosis Cutis and Syringocystadenoma. Urol. & Cutan. Rev., St. Louis, 1921, 25: 271.

Shelmire, J. B. Adenoma Sebaceum. Tr. Am. M. Ass., Chicago, 1918, p. 141.

Taylor, G. G. S., and Berendt, F. H. Three Cases of Adenoma Sebaceum in One Family. Brit. J. Dermat., London, 1893, 5: 360.

Recklinghausen's Disease

Charpentier, J. Maladie de Recklinghausen et psychosa périodique. Encéphale, Paris, 1910, 5: 460.

Ewing, J. Neoplastic Diseases, Philadelphia, W. B. Saunders Co., 2nd Ed., 1922, p. 155.

Friedlander, D. Report of a Case of Multiple Neurofibromata with a Review of the Subject Based on 262 Cases Reported in the Literature. J. Cutan. Dis., New York, 1910, 28: 497.

Hoekstra, G. Ueber die familiäre Neurofibromatosis mit Untersuchungen über die Häufigkeit von Heredität und Malignität bei Recklinghausen's Krankheit. Virchow's Arch., Berlin, 1922, 237: 79.

Ravogli, A. Fibroma Molluscum or Universal Neurofibromatosis. J. Cutan. Dis., New York, 1911, 29: 71.

Urticaria Pigmentosa

Finnerud, C. W. Urticaria Pigmentosa (Nodular Type) with a Summary of the Literature. Arch. Dermat. & Syph., Chicago, 1923, 8: 344.

CHAPTER II

ARTIFICIAL DERMATITIS

GENERAL CONSIDERATIONS

The term artificial dermatitis is used by Darier to include eruptions which are caused by mechanical, physical or chemical agents. These are very common and they may assume almost all types of cutaneous lesions, including erythema, urticaria, purpura, eczema, pigmentation, keratosis and gangrene. A predisposition is noted particularly in the case of chemical irritants. The nature of the eruption, its onset and duration depend partly on the causative factor and partly on the natural reaction of the individual. Some irritants may produce widely different effects in different persons, while, on the other hand, the same form of skin disease may be produced by many different causes. The following table indicates the diversity of affections of this class:

Classification

1. *Mechanical Agents*	Dermatitis traumatica
Friction (intertrigo)	
Scratching (punctate or linear excoriations)	
Pressure (callus, corns, bed-sores)	
Wounds	
2. *Physical Agents*	Dermatitis calorica
Heat and cold (burns and frost-bite)	
Electricity	Dermatitis actinica
Light (sunburn, and indirectly hydroa vacciniforme and xeroderma pigmentosum)	
Roentgen rays and radium	
3. *Chemical Agents*	Dermatitis venenata
A. External	
Medicaments used externally	
Occupational irritants	
Dyed clothing, hair preparations, etc.	
Certain plants and insects	
B. Internal	Dermatitis medicamentosa
Drugs, vaccines, serums	
Feigned eruptions (malingering), caused by any of the above	Dermatitis factitia

Among the affections which are caused by mechanical means, excoriations (scratch marks) and their sequelæ are described in connection with pruritic diseases such as scabies, pediculosis and prurigo. The effect of long-continued pressure in producing callosities and corns will be described later. Wounds are considered in surgical treatises. The effect of friction is seen in the common affection of childhood, known as erythema intertrigo or simply intertrigo.

DERMATITIS TRAUMATICA

Erythema Intertrigo

Symptoms.—The affection is primarily a simple chafing of opposed surfaces of the body due to friction, heat and moisture. To this may be added the irritation of decomposing sweat, of contamination with urine and feces, and of infection. Intertrigo may also be aggravated by the additional heat of warm weather or an excessive amount of clothing. It is seen in all of the natural folds of the body, such as the intergluteal cleft, the groins, axillæ, flexures of the joints and about the neck. It begins as simple erythema, but later, from maceration, may present a raw and moist surface. A superficial abrasion is often seen at the deepest part of the opposing surfaces and is characteristic. Ordinarily there is merely a mucoid secretion which stains but does not stiffen linen and may have a disagreeable odor. In neglected cases the process may increase in severity and lead to a veritable eczema with vesiculation and oozing. In such cases it is difficult to distinguish between intertrigo and eczema. With superimposed bacterial infection, impetigo, boils and abscesses may develop. The subjective symptoms of burning and tenderness may cause great annoyance.

Diagnosis.—This is not difficult as a rule, the disease occurring between opposed surfaces, especially in fat children. As to whether or not an individual case should be considered intertrigo or eczema is largely of academic interest. The differentiation from congenital syphilis and napkin rash will be discussed in the following section.

Treatment.—Cleanliness and avoidance of friction are essential. The affected parts may be gently washed with soap and water or a boric acid solution and carefully dried with soft gauze or cloth. Dusting powder is then applied. Ordinary talcum or fullers' earth are usually satisfactory and theoretically more suitable for a moist surface than starch which absorbs moisture and is apt to "cake." A useful formula consists of ten, thirty and one hundred parts respectively of powdered camphor, zinc oxid and talcum. Ointments are not suitable for intertrigo.

Erythema Gluteale

(Napkin Erythema)

Allied to intertrigo is an interesting affection carefully described by Jacquet. Two of the forms (papular and ulcerative) had been previously described by Parrot, who mistook them for manifestations of congenital syphilis.

Symptoms.—Unlike intertrigo which occurs in the flexures, gluteal erythema is seen on the convex surfaces. It may be limited to the genitals, perineum and inner aspect of the thighs or it may spread to the buttocks, lower part of the abdomen, back of the thighs, legs and heels. In the mildest form there is simply a deep red, shiny erythema. In the more severe type there may be vesicles, papules or ulcers.

Etiology.—The eruption is seen most often in infants who have not received proper care. In some cases an urticarial tendency may be a predisposing cause. As Adamson writes, "the peculiar distribution suggests very strongly local irritation by a wet or soiled napkin, which would come in contact with all these parts, for the heels and calves of a baby are constantly in close contact with the napkin and the perineum and scrotum are rubbed by the fold of the napkin which is brought forward between the legs." According to Cooke the irritation is due to ammonia produced by a bacillus which he isolated from the stools of infants suffering from gluteal erythema. Leopold thinks that the irritation results mainly from washing the napkins with cheap grades of soap which are highly alkaline. "The napkins are not thoroughly rinsed but after being washed are at once hung up to dry and when dry they still contain the irritating alkali." Leopold stated that the majority of his cases occurred in badly nourished infants.

Diagnosis.—The most important disease to differentiate is congenital syphilis, with which gluteal erythema has been often confused. The appearance of the eruption in an infant of six to twelve months favors the diagnosis of gluteal erythema as the early symptoms of congenital syphilis usually appear during the first two or three months. Congenital syphilis in the neighborhood of the genitals is apt to show some small discrete lesions, the color is a darker red and the border of the patches is more sharply defined. The eruption may also be present on the palms and soles and about the mouth, and other clinical signs may be present. Conclusive evidence is furnished by the presence of *Spirochæta pallida* or positive Wassermann test.

Gluteal erythema may resemble intertrigo but the location on convex areas exposed to pressure, as opposed to the flexures which are involved in the latter disease, is sufficient for differentiation. Seborrheic eczema may involve the same areas as napkin erythema, but is usually part of a generalized eruption, the lesions being present on the scalp and other favorite sites. The yellowish color, the greasy scales and possible presence of small discrete lesions would be helpful in diagnosis.

Treatment.—The napkin should be changed when soiled and washed with a mild soap and thoroughly dried. According to Cooke, the ammonia forming bacteria may be checked by washing the napkin in a solution of bichlorid of mercury 1 : 5000 or of boric acid 1 : 20. Soothing ointments should be applied and the bowels regulated.

DERMATITIS CALORICA AND DERMATITIS ACTINICA

The forms of artificial dermatitis due to physical agents vary greatly according to their causation which includes heat and cold, electricity, light, the Roentgen rays and radium.

Burns are caused by heat in either solid or gaseous form. Injuries due to chemical caustics and electricity are also frequently classed as burns.

There are three degrees of burns, the first showing simple redness, pain, heat and swelling. The same condition is present in the second degree with the addition of vesicles or bullæ. Third degree burns cause tissue necrosis. Burns are extremely painful, much more so than similar lesions due to cold, including applications of liquid air or carbon dioxid snow. Third degree burns may be less painful than those of milder degree, owing to the destruction of nerve-endings. Their course is that of non-progressive gangrene and they are always followed by scarring, often of a deforming character. Burns of the second degree do not produce scars unless they are complicated by secondary infection. Constitutional symptoms are severe in extensive burns and death is to be expected if more than one-third of the body is affected.

In the treatment of first degree burns, some greasy application will almost instinctively be applied by the patient. For this purpose boric acid ointment or cold cream answers the purpose. In the management of second degree burns it is necessary to prevent infection which may result in subsequent scarring. Vesicles and bullæ should be opened aseptically and wet dressings of a saturated solution of boric acid applied. When there is considerable abrasion, a perforated gutta-percha tissue may be used and covered with a sterile dressing. The same method is most useful for ulcerations following third degree burns. The discussion of the treatment of severe burns is not suitable for this volume.

Erythema ab igne is an unusual affection following more or less prolonged exposure to heat. It may occur on any part of the body, but is most often seen on the shins, following exposure to a hot furnace or radiator, but has also been known to follow applications of hot water bags. The eruption appears as a reticulated erythema consisting of circles of different size of bright or dark red color which later show a brownish pigmentation. The latter may disappear eventually or remain permanently. Erythema ab igne is an inflammatory affection causing little or no subjective symptoms and requiring no treatment.

Frost-bite is analogous to a burn from heat in that three degrees of severity are presented. There may be redness, vesiculation or necrosis of tissue, according to the severity of the injury. Cold differs from heat in not producing immediate pain and in requiring longer time for its effects to appear. The sites most often affected are the nose, ears, hands and feet. The time-honored method of treatment has been to rub the affected parts with snow or ice water, the patient remaining in a cold room until the normal temperature of the parts is restored. It is interesting in this connection to read that such a method is condemned by Stefanson, the well-known Arctic explorer (quoted by Sutton). "He employs gentle friction with the dry palm, the hand being warmed against the rescuer's breast as soon as it becomes thoroughly chilled." The patient is also given warm, non-alcoholic drinks. The action of cold in certain individuals may cause the affection known as chilblain.

Erythema Pernio

(*Chilblain*)

Symptoms.—The disease is seen in the extremes of life, childhood and old age. It is characterized by persistent erythematous swellings, most often affecting the heels and side of the feet and toes. It also affects the fingers, ulnar border of the hands, the ears and nose and occasionally the cheeks. The patches are tense and cold to the touch and of a dull reddish or purplish color. In severe cases there may be vesicles or bullæ and ulceration with subsequent scarring. The lesions are tender and cause severe burning and itching on exposure to warmth. They are single or multiple and may be symmetrical. The affection follows exposure to cold and continues for weeks or at times until the return of warm weather.

Etiology.—The important predisposing cause is poor circulation in children who may be anemic. Tight-fitting shoes also predispose to chilblain. Wright thinks that calcium deficiency in the blood is a causative factor, and some have claimed a relationship to tuberculosis. The exciting cause is exposure to cold which acts on the vasomotor apparatus and interferes with the normal vascular tone. The disease occurs most often from the fifth to the fifteenth year.

Diagnosis.—This is usually easy, the affection being recognized by many of the laity. Lupus erythematosus may simulate chilblain, but it never causes any subjective symptoms and is very rare in children.

Treatment.—This is mainly preventive. The general health should be improved in every possible way, special attention being given to active exercise. All unnecessary exposure to cold should be avoided. Warm socks and warm loose shoes should be worn and the child should avoid getting the feet wet. Many local remedies have been suggested, their number and variety being a good proof that none is specific. One of the best is perhaps tincture of iodin painted once a day on the affected parts. Vigorous massage is certainly indicated. Darier speaks highly of local hydrogen peroxid baths given two or three times a day for fifteen to twenty minutes. He also considers the "biokinetic method" of Jacquet excellent for active treatment as well as for prophylaxis. The patient is instructed to move all the joints of the affected extremities actively eight or ten times daily for five minutes, the extremities being kept elevated during the procedure.

Prognosis.—This is good though the course may be protracted. Recurrences are not infrequent.

Sunburn

The action of light in producing dermatitis is different from that of heat. An ordinary sunburn (erythema solare) is due to the action of actinic or so-called chemical rays of the sun at the violet end of the spectrum. The effects of exposure to the sun's rays as well as to ultraviolet rays from an artificial source do not appear at once. After several hours the skin becomes red, while if the exposure has been sufficiently great there is added vesiculation or the formation of bullæ. Necrosis of tissue, as in the case of exposure to heat, does not occur. That a sunburn is not due to heat is evident from the fact that it never occurs when exposure takes place through an ordinary pane of glass.

Treatment.—In the treatment of a severe case of sunburn with marked edema, cold compresses of a saturated solution of boric acid are most useful. This remedy is incidentally one of the best we possess for the treatment of all acute inflammations of the skin. For the ordinary case some greasy application such as cold cream or zinc salve will prove satisfactory. The latter are also useful as prophylactic measures. The rôle played by light in the production of hydroa vacciniforme and of xeroderma pigmentosum will be discussed in subsequent chapters.

Radiodermatitis

The action of the Roentgen rays and radium may be classed with that of sunlight, though the effects appear later and may be of much greater severity. Inflammation following the use of either Roentgen rays or radium is essentially the same and is known as radiodermatitis. It may occur as the result of treatment or the taking of a radiogram.

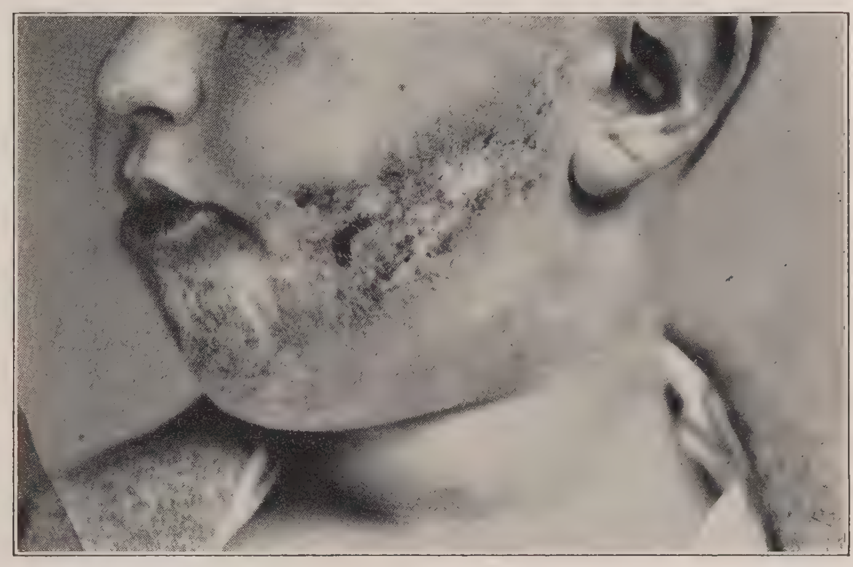

Fig. 17.—Dermatitis Actinica.
Radium burn following treatment of vascular nevus.

Symptoms.—Radiodermatitis may appear in a week or two after exposure, or may not appear until a year or more have elapsed. As in the case of burns due to heat there are three grades of severity, hyperemia, vesiculation (or bullous formation) and necrosis. A simple erythema, even when it is associated with considerable swelling and burning sensation, does not produce any permanent damage in the vast majority of cases. It must be remembered however, that any erythema may be followed later by telangiectasia or other injury. The slight redness which may appear a few hours or a day after exposure is of no importance and is probably due to heat rays. It is often spoken of as an "electrical reaction." Pigmentation is also harmless and eventually disappears. It is usually diffuse but may take the form of freckles. One of the effects of the Roentgen rays (and radium) is to cause loosening and falling of the hair. A temporary epilation is thus utilized for therapeutic purposes in both ringworm and favus of the scalp. When the dosage is too large the hair does not return. Alopecia of the occipital region may occasionally be seen as the result of taking a radiogram of the frontal sinuses. This may be temporary or permanent. The more severe degrees of radiodermatitis are invariably painful and extremely slow to heal. Some of them cause intense suffering and may resist all therapeutic efforts for a year or more. Furthermore, tissue which is damaged by this form of irradiation is always more or less susceptible to slight traumatism and may easily ulcerate. The late results of excessive irradiation may include telangiectasia, pigmentation, dryness and wrinkling of the skin, whitish atrophic spots, permanent alopecia, keratosis and epithelioma. They cor-

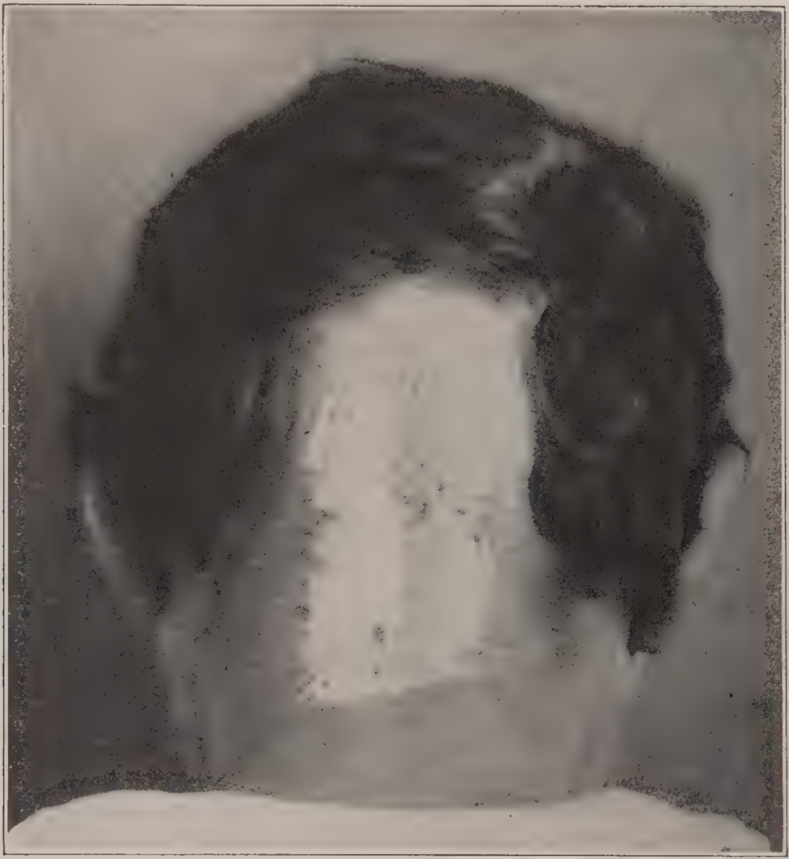

Fig. 18.—Dermatitis Actinica.
Roentgen ray burn showing permanent alopecia and depigmentation.

respond to changes seen in senile skin or that of persons who have been exposed for several years to the sun (farmer's and sailor's skin). Not every patient with telangiectasia will suffer later from cancer. This is always possible, however, especially when the damage has been severe.

Etiology and Pathology.—Radiodermatitis depends upon the quantity and quality of rays which are used, and only to a slight extent on idiosyncrasy. Blonds are more susceptible to the Roentgen rays and radium as they are to sunlight, and children are more susceptible than adults. Certain parts of the body, such as the flexor surfaces, palms and soles, are somewhat more sensitive to irradiation than others.

The histological changes in acute radiodermatitis are those of an inflammatory process with endarteritis. The obliteration of many of the vessels as a result of endarteritis is, according to Pusey, the cause of the permanent dilatation of the capillaries. There are also marked degenerative changes in the epithelium and ultimate atrophy.

Treatment.—The treatment of radiodermatitis is unsatisfactory. The general principles are the same as for ordinary burns. All varieties of lotions and ointments have been used but none have proved to be of great value. I have lately used the butesin picrate ointment in painful ulceration and I am fairly well impressed with its action. In some cases of ulceration, excision with or without skin-grafting is of great assistance.

Radiodermatitis may be largely prevented by not exceeding the safe limits of exposure, and in the case of the Roentgen rays by keeping the apparatus at all times in perfect working order. Filtered Roentgen rays if given in sufficient amount may injure the skin as severely as unfiltered rays. The dosage should always be measured, either by pastille or by electrical means (indirect measurement). Proper protection should be given to parts that are not being treated, and when a reasonable trial fails to give results, irradiation should be promptly discontinued and other measures tried. In my opinion, it is entirely proper to allow the treatment to be given by conscientious lay technicians, always under the direction of the physician familiar with this work.

Prognosis.—This is unfavorable as far as disappearance of the eruption is concerned. Treatment is unsatisfactory and there is always a possibility of future malignancy, especially in severe cases.

DERMATITIS VENENATA

There are many substances of a chemical nature which are liable to cause dermatitis by coming in contact with the skin or by being introduced into the system. The term dermatitis venenata is generally applied to an eruption caused by external irritants such as medicaments used externally, occupational irritants, dyed clothing and certain plants and insects.

Of the *medicaments* for external use some are applied with the object of inflaming the skin such as mustard, cantharides or iodin. In the case of chysarobin more or less severe dermatitis is necessary to obtain the desired therapeutic effect. There are many other medicinal preparations which may ordinarily be used without undesirable irritation but which in certain individuals cause more or less severe reaction. This is illustrated by a few of the following remedies in frequent use. Resorcin in hair lotions may cause a severe vesicular dermatitis. Iodin and especially iodoform may irritate the skin. Through absorption iodoform has been the cause of death. Phenol when used in fixed dressings may produce gangrene. Picric acid used for burns may cause a vesicular eruption in spite of its being generally considered harmless. Incidentally in my opinion, it is a poor remedy for burns. Mercury may cause a more or less general dermatitis and be followed by rather persistent pigmentation. Its ill effects are rather rare, however, considering the great extent to which mercurial preparations have been used, including calomel or blue ointment for congenital syphilis, and ammoniated mercury for impetigo, psoriasis and other dermatoses. Salol, which contains salicylic acid and phenol, is a constituent of some tooth-pastes and may cause a persistent eczematous eruption of the lips. Soap and water especially used to excess are often harmful to the tender skin of infants. Sulphur is naturally somewhat irritating and may cause an erythematopapular eruption. Tar may at times cause an acne-like eruption when used on hairy parts.

Occupational dermatitis, although very frequent in adults, need not concern us owing to the very small number of children in this country who are engaged in industrial work. Dermatitis is noted at times from dyed clothing but more particularly from dyed furs. Such an eruption is most likely to occur after wearing cheap and poorly made furs, especially those containing paraphenylendiamin. The diagnosis would be probable when an eruption confined to areas in contact with the fur appeared a few hours or a day after wearing it. If the eruption disappeared when the fur was no longer worn and reappeared later when it was worn again, the diagnosis would be reasonably certain.

Dermatitis may result from contact with many kinds of *plants*. This was shown in the classic monograph of J. C. White, describing sixty different species which are irritating to the human skin. Pusey in his textbook gives a list of one hundred and thirteen such plants which are to be found in the United States. The eruption due to contact with these plants is not an ephemeral one, such as the wheals which arise from touching the nettle. It is usually of the erythematovesicular type and

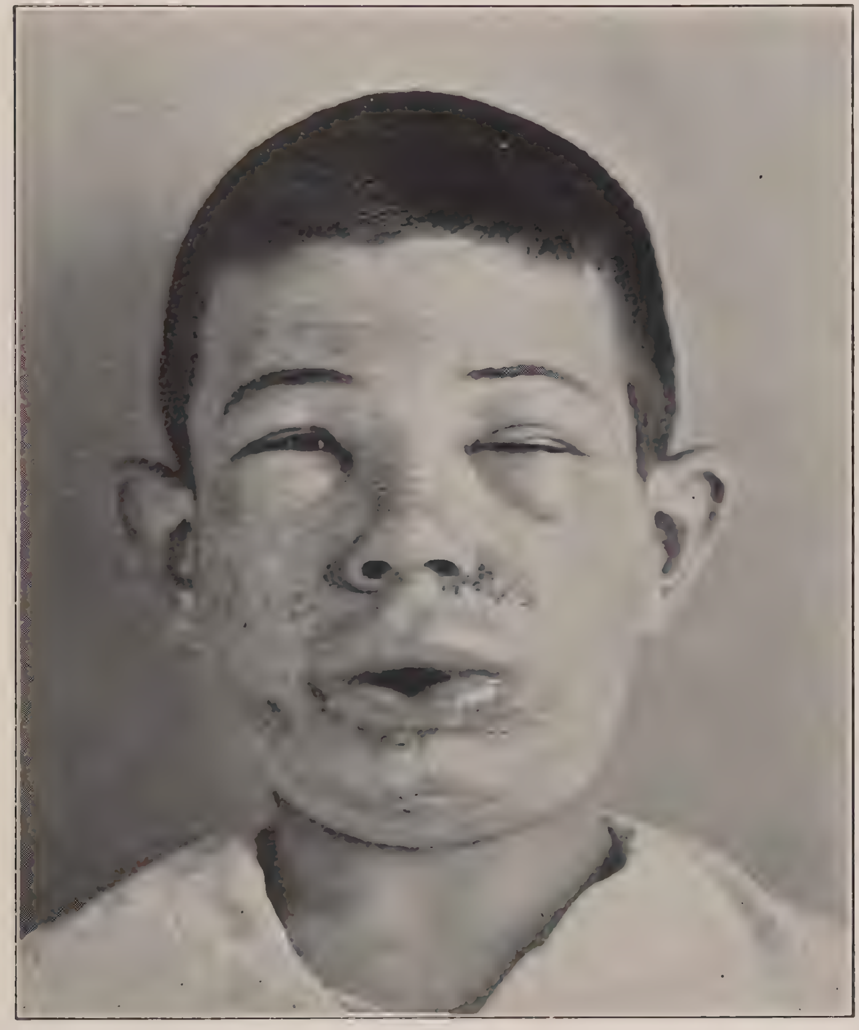

FIG. 19.—DERMATITIS VENENATA FROM POISON IVY, WITH VESICLES AND INTENSE EDEMA.

appears a few hours or a day or more after contact. It may be localized or may involve large areas. It is apt to be very itchy and accompanied by more or less edema. At times there may be constitutional symptoms.

The most common plant of this type in the United States is the rhus toxicodendron or *poison ivy*, a vine that is indigenous to America.

and is present in every state of the Union. It is not seen in Europe. It grows on fences and trees, especially on locust trees in the vicinity of New York. The leaves appear in clusters of three, are of a shiny green color and turn a beautiful red in the fall, as some unfortunate victims have occasion to remember. The poison is contained in all parts of the plant including the roots and is known as toxicodendrol, though the irritating ingredient was formerly thought to be toxicodendric acid. Most of the cases of rhus dermatitis are seen in the spring and summer, though it may occur at any time during the year. One of the most severe cases I have seen followed exposure on the first of January. Susceptibility varies greatly and may increase with repeated exposures. There is no acquired immunity. The eruption appears most often on the face, hands, flexor surface of the forearms and the genitals. It consists of reddened skin, covered by many closely crowded, tense and shiny vesicles, which do not rupture easily. At times there are bullæ. Itching is invariably

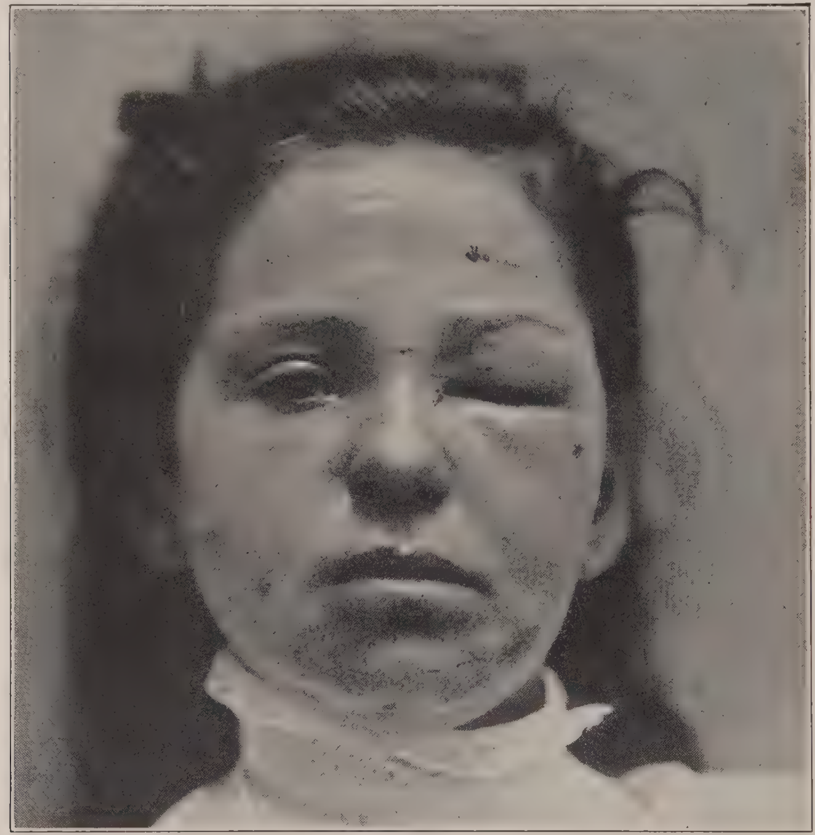

FIG. 20.—DERMATITIS VENENATA FROM POISON IVY, WITH VESICLES AND INTENSE EDEMA.

present and may be severe. Edema of the loose tissue about the eyelids and genitals is characteristic. At times the eyes are completely closed. The mucous membranes, however, are not affected. The eruption appears in full bloom a day or so after exposure, but may be delayed as long as five or even seven days. It disappears spontaneously in two or three weeks, with desiccation of the vesicles and some scaling, and leaves no permanent trace. Furthermore, it does not recur unless there is subsequent exposure. The lay idea that one attack will cause a recurrence of the disease for seven years is a myth.

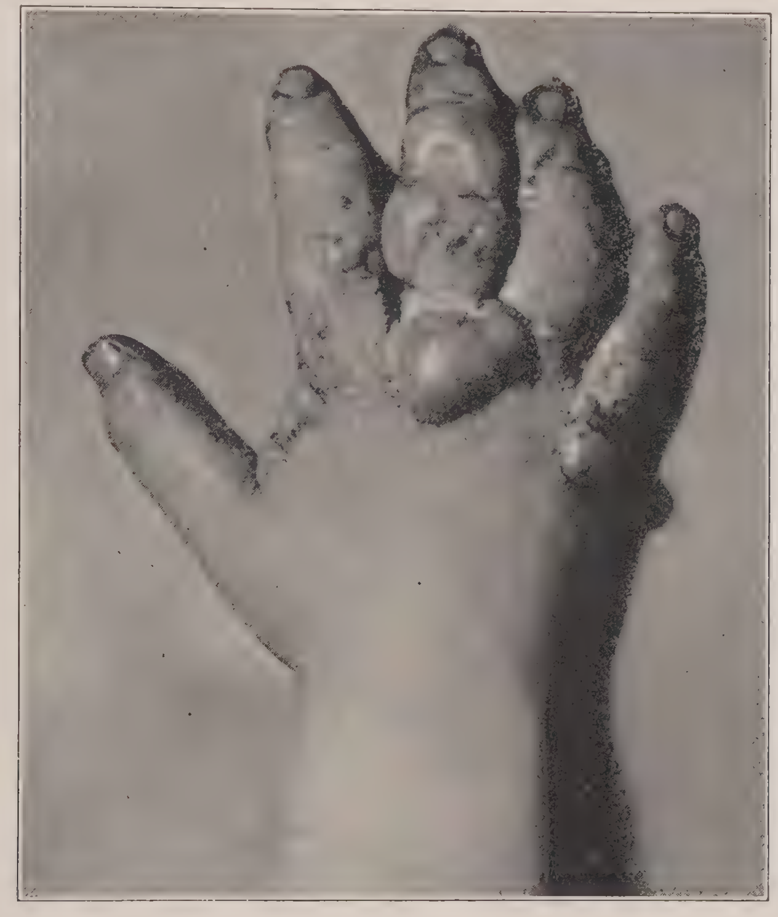

Fig. 21.—Dermatitis Venenata from Poison Ivy, Showing Numerous Unruptured Vesicles and Large Bullæ.

As the disease is thought to be due to an oily substance the rational treatment, at the outset at least, is to wash the affected parts with tincture of green soap, which acts by saponifying the oil. Soap is not suitable for the severely inflamed skin of a well-developed case. Cold compresses of boric acid are then indicated and may be followed by calamine lotion after the edema has subsided.

A specific method of treatment by so-called rhus antigen has been devised by Strickler. The substance he uses is an alcoholic solution of a glucosid derived from the leaves of the plant. Treatment of an attack of rhus dermatitis consists in intramuscular injections of 0.3 to 1 c.c. of the solution, the first two injections being given daily and subsequent injections if necessary at intervals of twenty-four to seventy-two hours. Favorable results are recorded by Bivings and by Williams. In my limited experience, with this method the results have been rather inconclusive. The same remedy has also been used by Strickler and by Bivings with success as a preventive measure. For this purpose the injections of 0.3 and 0.5 c.c. are given every four days for four doses followed by oral administration of the tincture of rhus toxicodendron. The initial dose is twenty drops three times a day with increasing doses until one teaspoonful is taken at each dose.

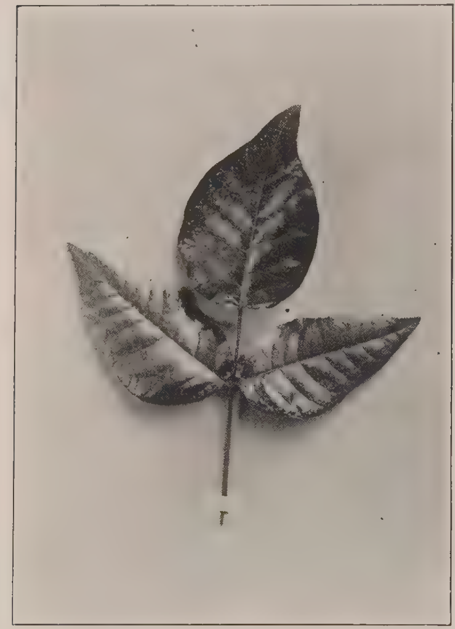

Fig. 22.—Rhus Toxicodendron (Poison Ivy).

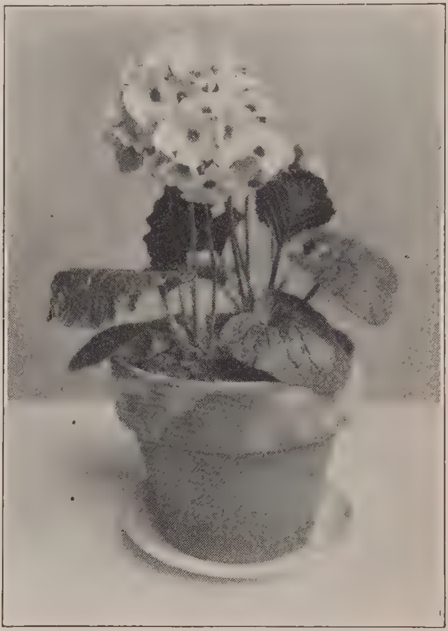

Fig. 23.—Primula Obconica (Primrose).

The shrub known as poison sumach (rhus venenata) is fully as irritating as the above variety, though it is far less common. The species known as poison oak (rhus diversiloba) has its habitat in California. Its action is similar to the others mentioned. A common household or garden plant which may cause as severe dematitis as poison ivy, is the English primrose (primula obconica). I have seen numerous cases in which the eruption followed the mere picking of dead leaves. Dermatitis venenata due to insects will be discussed later.

DERMATITIS MEDICAMENTOSA

This rather unwieldy term is used to denote eruptions due to chemical or biological substances introduced into the system by mouth or otherwise. Such substances include drugs, serums and vaccines.

Symptoms.—Many drugs are capable of producing eruptions which vary from simple erythema to gangrene. A certain type of rash may be caused by many different drugs, while on the other hand, a certain drug may produce numerous types of lesions. Drug eruptions are more or less generalized and symmetrical as a rule, often resembling the exanthemata. In some cases they are distinctly localized. They usually cause moderate subjective symptoms of burning or itching. In the great majority of cases constitutional symptoms are absent. Their onset is usually rapid, and, with a few exceptions, they disappear quickly after removal of the cause.

Etiology.—As a rule there is an individual susceptibility which may be either inherited or acquired. This is considered by many to be an example of allergy in spite of the non-protein character of the drug. It is generally thought that the lesions are not due to direct action on the skin, but rather to some toxic protein formed by the tissue cells, possibly those of the gastro-intestinal tract. This accords with the results of studies by Engman and Mook. According to Wile and his coworkers, neither iodids nor bromids were found in the pustules following ingestion of these drugs. While in many cases special susceptibility (idiosyncrasy) may be present, it is also true that if certain drugs are taken for a sufficiently long period an eruption may be produced in almost any individual. The majority of eruptions follow ingestion of the drug; some, however, are noted after intravenous, intramuscular or subcutaneous injections. On rare occasions a generalized eruption may follow local application (belladonna plaster).

Diagnosis.—The diagnosis is often difficult and may be a matter of importance especially in distinguishing the erythematous types from the exanthemata. The history of drug ingestion, the acute and rapid onset, the frequent symmetry and generalization, the presence of moderate burning or itching and absence as a rule of constitutional symptoms suggest a drug eruption. If the rash subsides shortly after discontinuing the remedy and reappears when it is again taken, the diagnosis is self-evident.

Treatment.—As a rule no treatment is required except to discontinue the administration of the remedy. Measures for aiding the elimination of certain drugs will be discussed later.

Although there are many drugs which are capable of causing eruptions (Ormsby mentions more than eighty), we are at present concerned only with the few which are used for children. In the following table a list of these is given with the most frequent types of eruption produced.

Drug	*Type of Eruption*
Aconite	Vesicular
Antipyrin	Erythematous, urticarial, purpuric, pigmentary
Arsenic	Erythematous, pigmentary, keratotic, zosteriform
Arsphenamin	Erythematous, urticarial, exfoliative
Belladonna	Scarlatiniform
Bromids	Acneform and granulomatous
Chloral	Erythematous, less often urticarial, papular, vesicular and purpuric
Iodids	Acneform, granulomatous, bullous
Opium and its alkaloids	Erythematous and urticarial, pruritus
Phenolphthalein	Fixed erythematous, becoming pigmented
Quinin	Erythematous, scarlatiniform, rarely bullous
Salicylates	Erythematous, purpuric
Santonin	Urticarial
Sulphonal	Exanthematous

A few of the above mentioned are of special interest and merit a more lengthy description. They include the bromids and iodids, which produce a variety of eruptions, some of which are unusual and characteristic. Bromoderma and iododerma are the terms used to designate eruptions due to these common remedies.

Bromoderma.—Eruptions due to bromids are fairly frequent and certain types are characteristic. The typical varieties are the acneform or so-called bromid acne and the granulomatous. The acneform type is the more common of the two. It consists of papulopustules, many of which are deep seated, occurring especially on the face, shoulders and back and to a less extent on the extremities. It resembles acne, with the exception that comedones are absent. The most characteristic type is the granulomatous or "anthracoid" (from its resemblance to anthrax). This appears as single or multiple dull reddish, round or oval and moderately firm elevations covered with adherent crusts. The lesions often present a cribriform appearance, like a carbuncle with pus oozing at numerous points. They may fuse and form large areas, at times resembling blastomycosis or a crustaceous nodular syphilid. The lesions occur most often on the face, buttocks and legs. Various other eruptions which are not characteristic may be caused by bromids, though such are more often seen after the use of iodids. They include those of erythematous, urticarial, vesicular and bullous type. Bromoderma appears as a rule only after long ingestion of the drug and often persists for several weeks after its discontinuance. It is not infrequently seen in epileptics, though less often than formerly, when bromids were so freely used for this disease. I have

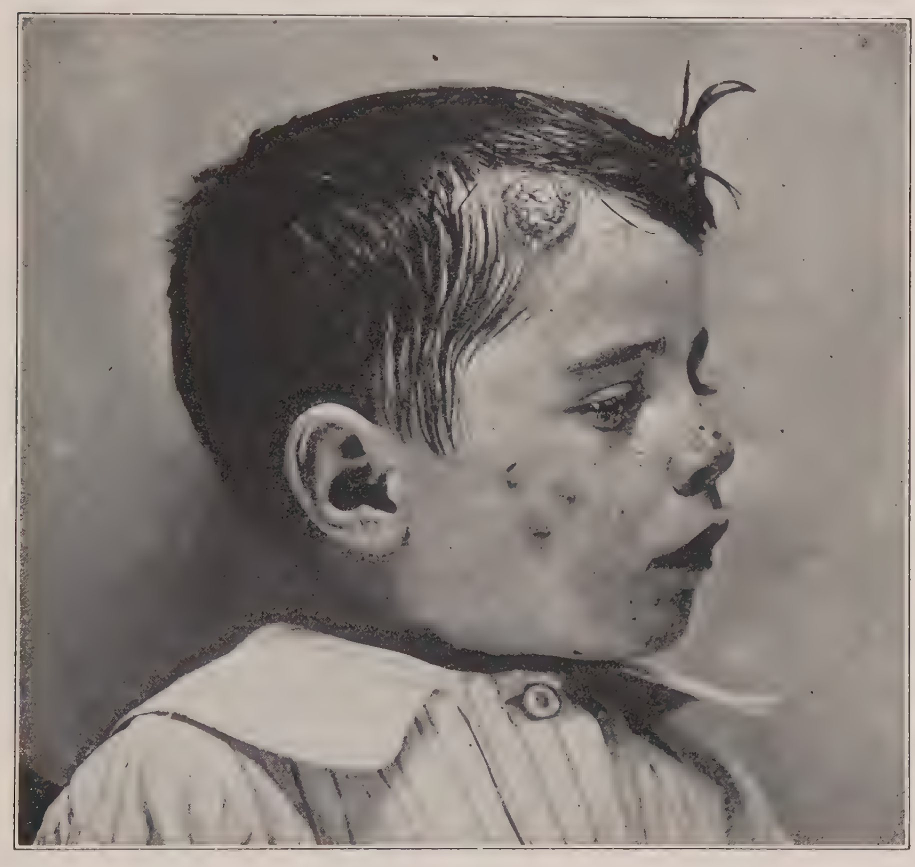

FIG. 24.—DERMATITIS MEDICAMENTOSA FROM INGESTION OF BROMIDS.
Granulomatous lesion of forehead and acne-like lesions of cheek.

reported two cases of severe bromoderma (in adults) following long continued ingestion of bromoseltzer.

Iododerma.—Iodid eruptions are probably more common than those produced by any other drug, which may be due in part to their extensive use. The majority of persons taking iodids show some changes in the skin. The most common type of eruption is the iodid acne, similar to, but more common than bromid acne. Granulomatous lesions closely resembling those produced by bromids may also occur, but are rare. A bullous type is characteristic though infrequent. The eruption at times may resemble erythema multiforme or pemphigus vegetans. It may be ulcerative or hemorrhagic, and in some cases has been fatal. The mucous membranes of the mouth and throat may be involved. All extensive iodid eruptions are apt to be associated with coryza and gastro-intestinal irritation. Potassium bromid seems to produce eruptions more frequently than sodium or strontium bromid. As in the case of bromoderma, the lesions are rather persistent and may remain several weeks after stopping the drug.

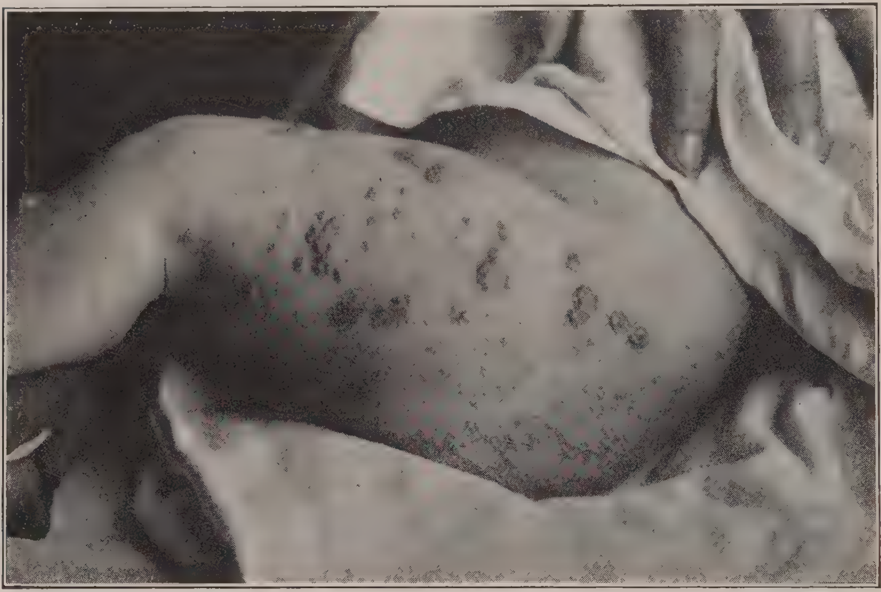

FIG. 25.—DERMATITIS MEDICAMENTOSA IN A NURSING INFANT WHOSE MOTHER HAD TAKEN BROMIDS.

The treatment of both bromid and iodid eruptions is the same. The drug should be withdrawn if possible, and in the case of nursing mothers, when bromid medication is deemed necessary, the baby should be weaned. The involution of the eruption may be hastened by intravenous injections

BOSTON MEDICAL
1964

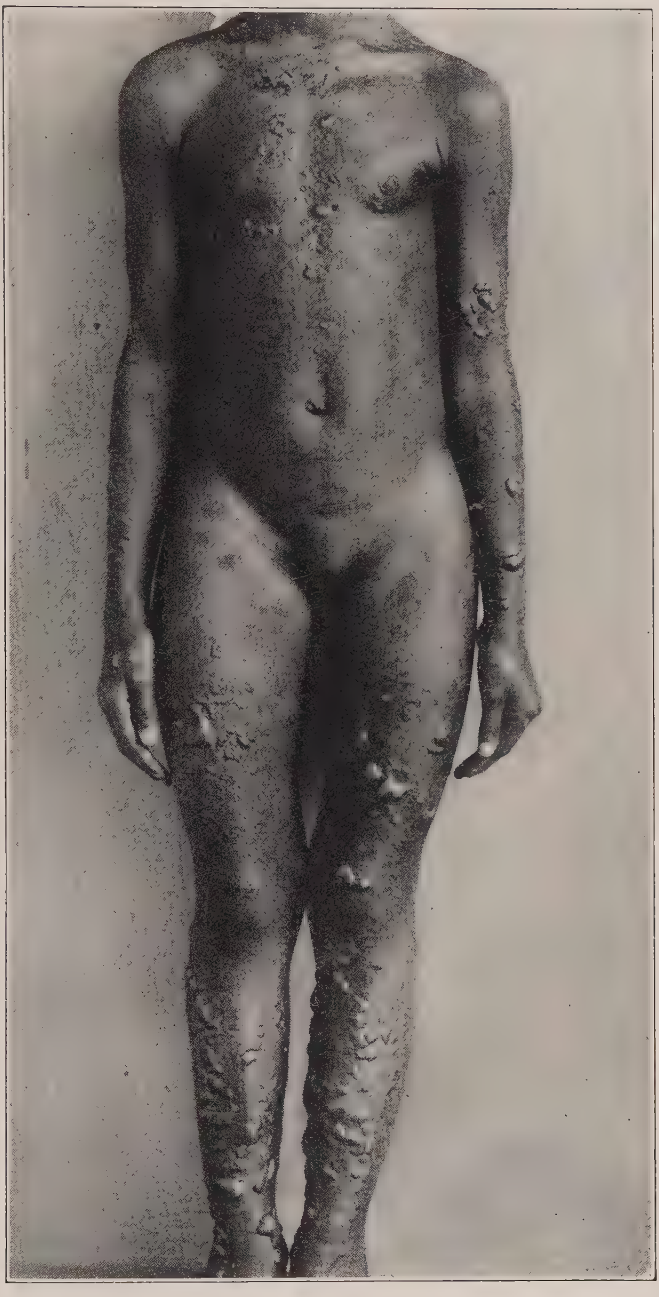

FIG. 26.—DERMATITIS MEDICAMENTOSA FROM INGESTION OF IODIDS. An uncommon but characteristic vesiculobullous type.

of physiologic salt solution, as suggested by Wile, though in the majority of infants or young children such a method of treatment would seem unnecessary. The dosage for adults should be about 200 c.c. Correspondingly smaller amounts would be given to children. Several such treatments at intervals of a day or two may be administered.

Arsenical Eruptions.—While not very common, these are of considerable importance. They may assume almost every type of skin disease and be erythematous, urticarial, scarlatiniform, vesicular, pustular, pigmentary, keratotic, ulcerative or gangrenous. Such eruptions are less frequent than formerly when the drug was given indiscriminately for all kinds of skin affections. Arsenic may enter the system by other than medicinal means and give rise to eruptions. Among such might be mentioned food impurities. Arsenical eruptions may occur with acute poisoning from an excessive dose, from an ordinary dose in hypersensitive persons, or from long continued use of the drug. Acute poisoning may be accompanied by erythematous, vesicular, bullous or pustular eruptions associated with severe gastro-intestinal symptoms and edema of the eyelids. In chronic poisoning, there may be erythematous rashes lasting a week or so, and terminating in fine desquamation.

There are three rare but characteristic types of eruption due to prolonged administration of inorganic preparations of arsenic including keratosis, pigmentation and herpes zoster. Keratosis occurs most often on the palms and soles, the lesions appearing as small, hard, verrucous elevations or a diffuse horny thickening. There may be some erythema at the border of the affected areas and localized hyperhidrosis may be present. The condition is apparently due to direct stimulation of the cells of the basal layer. Arsenical pigmentation is most marked on the covered parts, especially the trunk. It assumes various shades of brown and shows a characteristic mottling or reticulation. Like many other hyperpigmentations, it is more pronounced in regions which are normally darker, such as the axilla or scrotum. Unlike Addison's disease it does not involve the mucous membranes. The pigment is probably melanin; it is certainly neither arsenic nor iron. Herpes zoster, while uncommon, has been seen often enough during arsenical administration to warrant the conclusion that its occurrence was not a coincidence. It is well known that the drug is neurotropic and can cause neuritis and optic atrophy. The treatment of arsenical keratosis is unsatisfactory, the affection tending to remain indefinitely and occasionally giving rise after many years to prickle cell epithelioma. Pigmentation tends to disappear slowly after the drug is discontinued.

The administration of opium and its derivatives may be followed by erythematous and other types of eruption, which are, however, uncommon. These drugs are also known to cause itching especially about the nostrils and at times a general pruritus with or without cutaneous lesions. Certainly, opium would be a poor drug to use for the control of itching.

Phenolphthalein eruptions are uncommon considering the enormous amount of the drug which is consumed in the form of patent laxatives. It is one of the few drugs which produces a characteristic type of eruption. This appears in the form of one or more, occasionally many, round or oval, varying sized "fixed" patches of erythema. The redness disappears eventually leaving pigmented areas which may remain unchanged for months or years. On taking a subsequent dose of the drug, these patches often again become temporarily reddened.

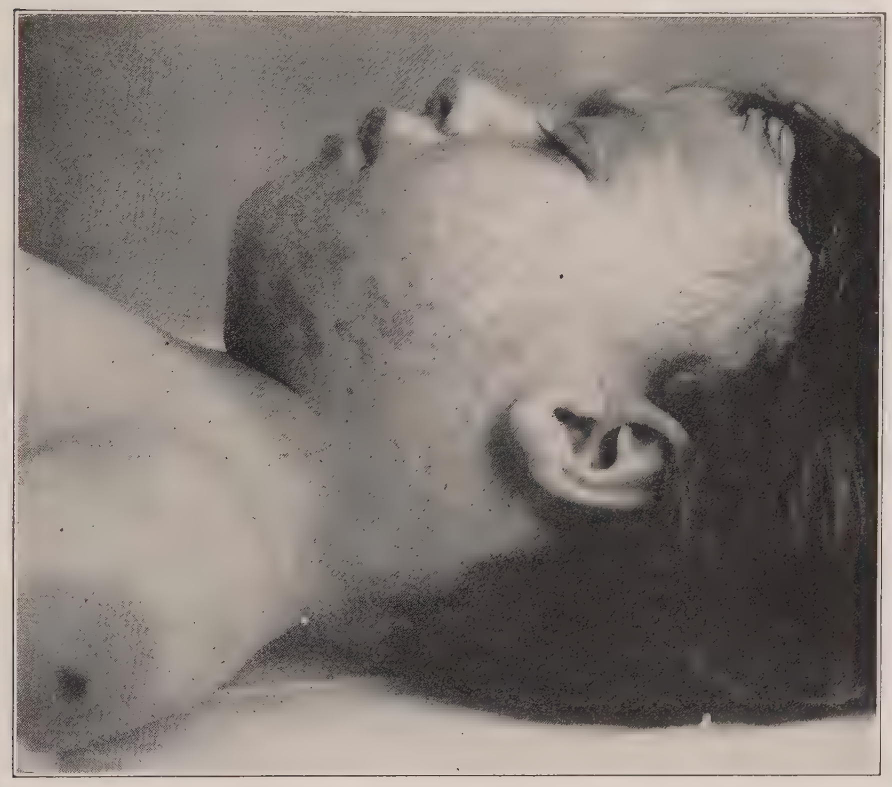

Fig. 27.—Dermatitis Medicamentosa (Serum Rash) Following Injection of Diphtheria Antitoxin.
Vaccinia of arm.

Eruptions following ingestion of quinin are usually of the erythematous or scarlatiniform, rarely of the bullous type. This is an example of a drug to which certain individuals are extremely sensitive. The eruption may result from taking very small doses, such as one grain, and in severe cases can be accompanied by tinnitus aurium and other symptoms of cinchonism.

Serum Rashes.—These constitute typical examples of anaphylaxis, following introduction into the system of a foreign protein. They are most frequently due to injections of diphtheria antitoxin, but may also follow the use of antitetanic or other serum or of tuberculin. In 11.4 per cent of all cases treated by serums, the eruption appears, according to Hartung, in six to ten days. The type is most often urticarial but may be scarlatiniform, morbilliform, bullous or may resemble erythema multiforme. It is frequently associated with edema and occurs especially on the trunk. It lasts several days and may recur, disappearing as a rule without trace. The eruption may be accompanied by constitutional symptoms of varying degree, including fever, joint pains and albuminuria. Some cases result fatally. Vaccines may cause similar eruptions and have been blamed, often unjustly I think, for the initial appearance of chronic diseases such as psoriasis.

DERMATITIS FACTITIA

Feigned eruptions are chiefly seen in malingerers or hysterical women. They are uncommon in adults and extremely so in children. It would hardly be possible to think of deliberate self-mutilation in any but a very precocious child. Such eruptions are of various types according to the agent used in their production. They always present an unnatural appearance, unlike that of well-recognized dermatoses, and are always within reach of the hands. When a liquid has been applied, there may be a streaked appearance where it has flowed downward, or the fingers and clothing may be stained. Such eruptions are usually caused by chemical caustics or by friction, as with sandpaper. The management of such cases requires the utmost tact on the part of the physician.

BIBLIOGRAPHY

ERYTHEMA GLUTEALE

ADAMSON, H. G. On Eruptions of the Napkin Region in Infants. Brit. J. Child. Dis., London, 1908, 5: 13.

JACQUET, L. Dermites Infantiles Simples. Traité d. mal. d. l'enf., Paris. 1905, 4: 714.

LEOPOLD, J. S. Dermatitis Excoriativa Infantum, a Common Eruption of the Napkin Region of Infants. Arb. z. Zoäh. Bestehen. d. Kinderasyls d. Stadt Berl., 1911.

Artificial Dermatitis

Bivings, F. L. Successful Desensitization and Treatment of Poison Ivy and Poison Oak Poisoning. Arch. Dermat. & Syph., Chicago, 1924, 9:602.

Engman, M. F., and Mook, W. H. A Contribution to the Histo-Pathology and the Theory of Drug Eruptions. J. Cutan. Dis., New York, 1906, 14: 502.

Pusey, W. A. Principles and Practice of Dermatology, New York, D. Appleton & Co., 4th Ed. 1926, p. 38.

Strickler, A. The Value of the Toxin (antigen) of Rhus Toxicodendron and Rhus Venenata in the Treatment and Desensitization of Patients with Dermatitis Venenata. J. Am. M. Ass., Chicago, 1923, 80: 1588.

Van Der Bogert, F. Bromin Poisoning through Mother's Milk. Am. J. Dis., Child., Chicago, 1921, 21: 167.

White, J. C. Dermatitis Venenata. Boston, Cupples and Hurd, 1887.

Wile, U. J., Wright, C. S., and Smith, N. R. Report on Preliminary Studies on Iodid and Bromid Exanthems. Arch. Dermat. & Syph., Chicago, 1922, 6: 529.

Wile, U. J. Further Contributions to the Experimental Aspects of Iodid and Bromid Exanthems. Arch. Dermat. & Syph., Chicago, 1923, 8: 407.

Williams, C. M., and MacGregor, J. A. Treatment of Ivy Poisoning by Rhus Tincture and Antigen. Arch. Dermat. & Syph., Chicago, 1924, 10: 515.

CHAPTER III

ERYTHEMAS

CIRCULATORY DISTURBANCES OF SKIN

Before discussing the various diseases designated by the term erythema, a few words should be devoted to the general subject of circulatory disturbances of the skin. The word hyperemia means simply an increased amount of blood in the skin, which may be confined to local areas or be generalized. Hyperemia is spoken of as active when it is due to an increased amount and rapidity of flow of blood in the capillaries. It may appear as round or oval spots, representing the base of a cone of capillaries supplied by an arteriole. A diffuse redness results when numerous arterioles are affected. Hyperemia is called passive when there is an increased amount of blood due to venous stasis. This may be diffuse or appear in a reticulated or mottled form. In the latter case, there are areas of normal skin surrounded by bluish circles representing congested vessels between the arterial cones.

Passive hyperemia is usually diffuse and varies greatly in its severity. The skin is bluish in the milder cases and deep purplish or cyanotic in the severer ones. It feels cold and often moist to the touch. It is an evidence of impaired circulation, the cause of which is not often apparent. Many persons, however, with cold, clammy and bluish extremities seem to enjoy general good health. Passive hyperemia may be due to cardiac weakness and is seen especially in the limbs from the mechanical action of gravity. It may be induced by the action of cold, as in pernio, which has been previously described. In passive congestion, the skin shows an increased vulnerability, traumatism being more readily followed by inflammation, ulceration or even necrosis in severe cases.

Passive hyperemia occurring in reticulated form is frequently seen in children, especially on exposure to cool air after undressing. This is known as cutis marmorata or livedo reticularis. In the majority of cases it is mild and transitory. At times it is well marked and persistent, appearing especially on the legs and occasionally affecting the entire lower extremities and also the arms. Tuberculosis has been thought to play a part in its causation. It tends to lessen or disappear in adult life. In some cases of livedo, the process is not merely one of congestion but an inflammation, as seen in the so-called erythema ab igne which has been previously discussed. Similar conditions may be associated with syphilis, tuberculosis and other diseases. Various skin diseases such as measles or parapsoriasis may assume a livedo pattern, following the capillary distribution.

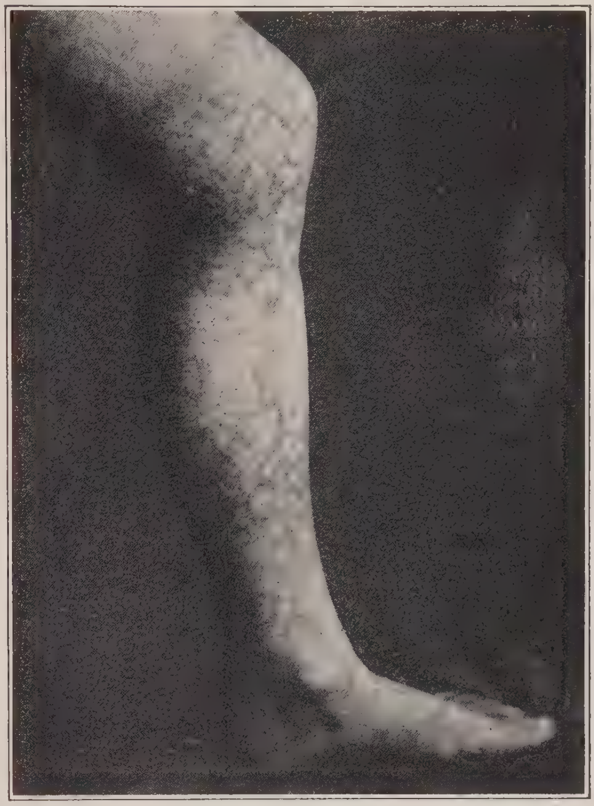
FIG. 28.—LIVEDO RETICULARIS.

Active hyperemia is generally described by the term *erythema* and refers to redness of the skin which disappears temporarily on pressure. Erythemas are classified as hyperemic and exudative, although the border line between hyperemia and inflammation is often indistinct, in view of the fact that hyperemia constitutes the first stage of inflammation. The term hyperemic erythema is conveniently restricted to eruptions of internal causation, using the designation dermatitis with appropriate adjectives, such as traumatica, calorica, venenata, etc., for those of external origin. The latter forms have already been discussed under the general title of artificial dermatitis, and include redness of the skin due to innumerable causes of a mechanical, physical or chemical nature.

ERYTHEMA HYPERÆMICUM

Symptoms.—Erythema hyperæmicum or simple erythema occurs as irregular-sized patches (often of an ephemeral character), or as more or less generalized macular eruptions. The macular type may be symptomatic of some well-recognized constitutional disease, such as one of the exanthemata, typhoid fever or syphilis. In addition there are many eruptions of similar appearance, which are usually ascribed to toxins of food or bacteria, to drugs, serums or antitoxins. They are often spoken of as toxic erythemas and are frequent in infancy and childhood. They may be of morbilliform, scarlatiniform or roseolar type. They are seen mostly on the trunk and upper part of the arms, and cause little or no subjective or constitutional symptoms. The course is short as a rule, the eruption subsiding in a few days or a week or two, though it may recur. Scaling is absent or trifling in amount and the lesions disappear without trace.

Diagnosis.—The chief importance of the affection is the differentiation from the exanthemata, and in case of doubt at the outset the patient should be isolated for further observation. The proper diagnosis is suggested by the absence of catarrhal symptoms. German measles is most often confused with toxic erythema, but the possible history of contagion and the adenopathy of the former disease would be helpful in the diagnosis.

Treatment.—This is symptomatic and directed mainly toward finding the cause in recurring cases.

In the following section another more serious, though rare type of hyperemic erythema known as erythema scarlatiniforme will be discussed. Following this, two examples of the exudative type, erythema multiforme and erythema nodosum, will be described.

ERYTHEMA SCARLATINIFORME

Symptoms.—Erythema scarlatiniforme is an inflammatory noncontagious and frequently recurring disease, which may closely simulate scarlet fever. For the latter reason, it is one of importance even though it is rare, especially in children. There are different grades of severity, the milder ones being more or less localized, while the more severe types are universal in distribution. The onset is sudden as in scarlatina, and there may be prodromal symptoms. The eruption is of the punctate bright red erythematous type, becoming rapidly diffuse. Depending on the severity, the rash subsides in twenty-four hours to three or four days and is followed by desquamation. This may be of the branny type or of the more characteristic lamellar form, with at times the formation of epithelial casts of the hands and feet. The throat may be red but the patients are not apt to complain of soreness. The tongue is coated and red, though the "strawberry" appearance, as in scarlet fever, is almost always absent. Both subjective and constitutional symptoms are likely to be mild. The pulse rate is in proportion to the rise of temperature.

In severe cases the hair and nails are involved. The disease lasts two or three weeks as a rule but at times it may be prolonged by frequent relapses to six or eight weeks. The striking feature is the tendency to recur. In one of the few patients which I have observed (case of Faxton Gardner), there had been eight separate attacks at approximately yearly intervals.

Etiology.—The cause of erythema scarlatiniforme appears to be a toxin of microbic or metabolic origin. The disease has been observed to follow or appear in association with measles, varicella, diphtheria, sepsis, rheumatism, intestinal toxemia and the administration of drugs or serums. It is not communicable and is of a simple inflammatory nature.

Diagnosis.—The chief importance of this affection lies in its similarity to scarlet fever. As the symptoms of the latter are often very atypical, it is readily seen that the differential diagnosis may prove difficult In general, the eruption of erythema scarlatiniforme is apt to be less extensive, and the constitutional disturbance less severe than in scarlatina. The characteristic throat and tongue and the adenopathy are usually absent. There is no history of contagion and the tendency to recurrence is characteristic.

Treatment.—The treatment is symptomatic and includes rest in bed, a fluid diet, laxatives and avoidance of exposure to cold. The mild character of the subjective symptoms does not require more than an antipruritic lotion. In the later stages of desquamation a simple emollient may be used. In any case a search should be made for the usually elusive cause, in order to prevent recurrences, which in some cases are very numerous.

ERYTHEMA MULTIFORME

Erythema multiforme is an exudative type of erythema first described in 1869 by Hebra. It is a rather infrequent affection of childhood.

Symptoms.—The onset is invariably sudden and may be preceded or accompanied by mild constitutional symptoms, though these are absent as a rule. The eruption is usually restricted in its extent, though at times extensive areas may be involved. The favorite sites are the extensor surfaces of the extremities below the elbows and knees and less often the face and neck. The eruption is usually symmetrical. As its name would imply, the lesions are distinctly multiform or polymorphous and include macules, papules, vesicles and bullæ. One type, however, usually predominates. The most common lesion is the papule, which soon becomes flattened and not infrequently shows a tendency to clear in the center and form rings. By coalescence of such lesions, various gyrate or festooned figures are formed. Two or more types of lesions may occur in the same eruption, either simultaneously or successively. A somewhat unusual though characteristic type of eruption is known as erythema iris, in which two or three or occasionally more concentric circles are formed. The central portion of such lesions is dark bluish, the outlying or newer rings being successively lighter in color. At times these concentric layers consist of flattened opalescent vesicles and are known as herpes iris. The iris type of eruption is seen most often on the back of the hands. Bullous lesions are rather infrequent and may at times be hemorrhagic. A certain amount of purpura, especially on the lower extremities, is not uncommonly associated with erythema multiforme. In rather exceptional cases the mucous membranes may be involved, including those of the nose, mouth, pharynx, conjunctiva and genitals. In this locality they may precede the eruption on the skin.

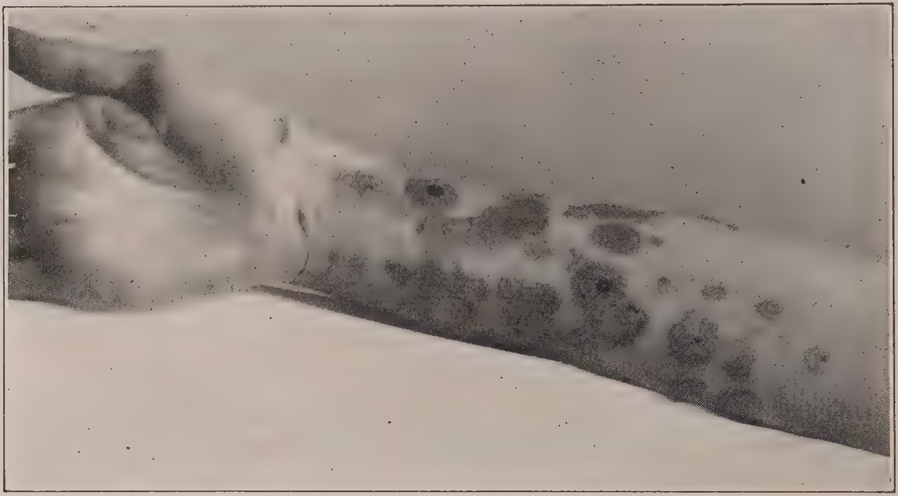

Fig. 29.—Erythema Multiforme of "Iris" Type Showing Concentric Circles.

Subjective symptoms are usually mild or absent and consist of burning rather than itching. Constitutional symptoms are also mild and are often entirely absent. They may be severe in the rare instances in which the eruption is associated with certain visceral disturbances such as the frequently quoted cases observed by Osler. In such cases there is often a rise of temperature of several degrees, severe prostration and rheumatoid pains in the larger joints. Ill-defined joint pains may accompany some of the milder types of the disease.

Erythema multiforme is a self-limited affection running its course as a rule in two to four weeks. A few days after the onset, new lesions may continue to form. After the disappearance of the eruption there may be some temporary pigmentation especially on the lower extremities. In rare instances the lesions persist for months without change and are known as erythema perstans. The affection would be of less importance if it were not for its tendency to recur. The process in this way is sometimes protracted for years. I have had occasion to closely follow such a case for ten years. The patient, a girl, was first seen at the age of six, when she presented a typical eruption of erythema multiforme appearing one week after vaccination for smallpox. Whether the introduction of a foreign protein in the form of this vaccine was an etiological factor or a mere coincidence, I do not know. During the past ten years the

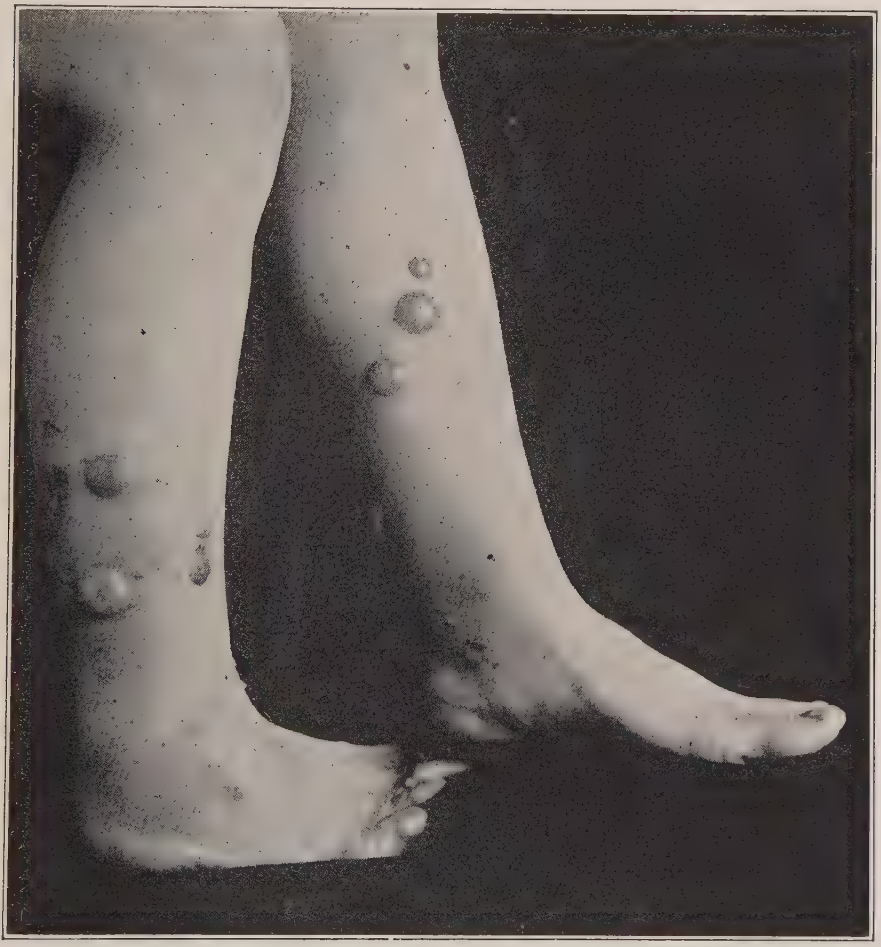

FIG. 30.—ERYTHEMA MULTIFORME OF BULLOUS TYPE.

patient has suffered from innumerable outbreaks of the eruption, never being entirely free in the intervals. On several occasions the eruption has been very itchy and has closely simulated that of dermatitis herpetiformis. At times she has shown a classic example of herpes iris.

Etiology and Pathology.—The cause of erythema multiforme in the majority of cases is difficult or impossible to ascertain. The eruption appears to be due to toxins of bacterial or metabolic origin. Some cases are plainly examples of allergy such as those which follow injections of serums. The eruption may also follow the ingestion of certain drugs. It is seen in association with a number of the more severe infectious diseases.

At times disease of the tonsils is apparently causative. In rare cases it may accompany severe affections of the internal organs. Attacks of erythema multiforme have been claimed to be more common in the spring and fall. They are also seen fairly often in persons emigrating from one country to another, as a result of which the designation of erythema immigrans has been used. The histologic picture is that of a simple exudative inflammation.

Diagnosis.—The diagnosis is usually made without great difficulty on the symmetry of the eruption, its favorite locations, the multiformity of its lesions and the absence as a rule of both subjective and constitutional symptoms. The tendency to recur is characteristic. The differentiation from urticaria is at times difficult as there are border line cases which are hard to classify. In urticaria the lesions are not so symmetrical or grouped, are more prevalent on the covered parts and are more evanescent and pruritic. A localized eruption with circinate lesions may be mistaken for ringworm, but there is no scaling, and no fungus is found on microscopic examination. Erythema multiforme of the papular type is distinguished from eczema by the large size of the papules, the absence of itching and the course of the disease. Erythema multiforme may be temporarily confused with German measles and at times the vesicular type has been mistaken for variola. The iris types are unique and do not resemble any other skin disease. The characteristic itching of dermatitis herpetiformis would generally differentiate this disease from erythema multiforme. A greater difficulty is seen at times in distinguishing erythema multiforme and pemphigus. In the former affection the bullæ arise as a rule on reddened areas and not on normal skin. In some of the extensive cases, however, an immediate diagnosis is impossible. A history of gradual loss of flesh and strength and especially the presence of bullous lesions in the mouth favor the diagnosis of pemphigus. This may be evident from the further course of the disease, pemphigus (in children) ending fatally at times whereas erythema multiforme is a self-limited and comparatively harmless disease.

Treatment.—The treatment of erythema multiforme consists in eliminating the cause if possible. This is often difficult, as has been said, and is chiefly of importance in the cases showing recurrence. Removal of infected tonsils, treatment of any existing gastro-intestinal disorders and measures for improving the general health are indicated. When subjective symptoms are present simple antipruritic lotions may be used. Bullæ may be opened aseptically and wet dressings of boric acid applied. The treatment of severe cases resembling pemphigus is similar to that described under the latter disease.

Prognosis.—This is good in an individual attack as the disease runs a short, self-limited course. The tendency to recurrence, however, is not infrequent.

ERYTHEMA NODOSUM

Erythema nodosum is an uncommon disease of childhood. It was formerly thought to be a form of erythema multiforme but at present is generally considered to be a clinical entity.

Symptoms.—The onset is sudden and may be accompanied by constitutional symptoms, consisting of malaise, fever and pain and swelling about the joints. These symptoms may precede the eruption by a few hours or a day or so. The eruption is more or less symmetrical and is most often seen on the legs, especially the anterior aspect. In some cases it extends to the thighs or may involve the arms and rarely the face. It appears as slightly elevated, round or oval, ill-defined swellings from one-half to two inches in diameter. The lesions vary in number from two or three to a score or more. They suggest the appearance of bruises, as one of the synonyms for the disease, dermatitis contusiformis would imply. The overlying skin is tense, smooth and at first bright red, but soon becomes darker in color. The lesions are extremely tender to the touch and while firm in consistency at the outset, they later become soft and doughy and suggest an abscess which is about to ulcerate. Such a termination is extremely rare and when it occurs is doubtless due to accidental infection. The lesions are more or less painful and marked tenderness is one of the most characteristic features. In very rare instances the mucous membrane of the mouth has been involved. At times there are coexisting lesions of erythema multiforme.

The disease runs its course in the milder and more usual cases in two or three weeks. In the severer types the eruption may not disappear completely until the end of two or three months. New lesions continue to form for a few days and at times fresh crops appear subsequently in the course of the disease. The color darkens and goes through the change seen in an ordinary bruise. The eruption disappears eventually without trace and only recurs in the rarest instances. For the latter reason it represents a less serious affection than erythema multiforme, in spite of the discomfort which it frequently causes.

Etiology and Pathology.—Erythema nodosum is an uncommon disease which affects children and young adults especially, though it is also seen at times in infants. It is much more common in girls than boys, the proportion being three to one according to McKenzie, and five to one according to Schulthess and Harrison. Like erythema multiforme it is said to be more frequent in the spring and fall. Erythema nodosum has been known to follow throat infections, rheumatism, endocarditis, malaria, measles, exposure to cold and drug ingestion. There are also many facts which strongly suggest its relationship to tuberculosis as urged by Foerster and others. Rosenow has found a diplobacillus in the lesions of erythema nodosum and by intravenous inoculation in animals has produced subcutaneous hemorrhagic lesions from which the organism has been frequently recovered. It would seem that there are several types of the disease, one due perhaps to the causative factor of rheumatism, another to toxins, and without much doubt another type related in some way to the bacillus of tuberculosis.

Diagnosis.—Erythema nodosum may be differentiated from bruises and abscesses as the latter are rarely as numerous or symmetrical and their course is different. The differentiation from bruises may be of medicolegal importance. Erythema nodosum may simulate syphilitic gummata but the latter are usually few in number, are rarely symmetrical and cause little or no pain. Until softening and necrosis begin the overlying skin may be normal in color. Other evidences of syphilis may be present. The differentiation of erythema induratum (Bazin's disease) from erythema nodosum is at times difficult as both are most often seen in girls and occur as a more or less symmetrical eruption. Furthermore both may show coexisting evidence of tuberculosis. The lesions of Bazin's disease are seen more often on the back of the legs, they cause no pain and little or no tenderness and constitutional symptoms are absent. Their tendency to undergo necrosis, ulceration and scarring, their more chronic course and especially the tendency to recur should make the diagnosis clear. It would be positively established by histologic examination.

Treatment.—Rest is the most important factor, the patient being put to bed and given a fluid diet in the more severe cases. For the rheumatoid pains, salicylates have generally given the best service. Local applications of heat are said to be more suitable though in my experience cold compresses (of boric acid or Burrow's solution) frequently applied and not covered by an impermeable dressing give the most relief. Bandaging the extremities may aid in promoting absorption.

Prognosis.—This is good, as the disease runs a definite self-limited course and eventually disappears completely. The tendency to recurrence is extremely slight.

BIBLIOGRAPHY

ERYTHEMA NODOSUM

FOERSTER, O. G. Erythema Nodosum and Tuberculosis. J. Am. M. Ass., Chicago, 1914, 63: 1266.

HARRISON, A. J. President's Address. Brit. J. Dermat., London, 1900, 12: 250.

McKENZIE, S. On Erythema Nodosum Especially Dealing with Its Connection with Rheumatism. Tr. Clin. Soc., London, 1886, 19: 215.

ROSENOW, E. C. Etiology and Experimental Production of Erythema Nodosum. J. Infect. Dis., Chicago, 1915, 16: 367.

SCHULTHESS, H. Statistischer Beitrag zur Kenntnis des Erythema Nodosum. Cor. Bl. f. Schweiz. Aertze, 1895, 25: 65.

CHAPTER IV

PURPURA AND INFANTILE SCURVY

PURPURA

Purpura, from the Greek word meaning purple, should be regarded not as a disease, but as a symptom produced by many totally different causes. In this respect it resembles urticaria and erythema multiforme with which it is often associated. Before discussing the different varieties of purpura it will be convenient to refer to their symptoms in general.

General Symptomatology

The word purpura is used to signify hemorrhage in the skin or mucous membranes. The eruption of purpura is usually more or less profuse, frequently generalized and as a rule symmetrical. The lesions are nearly always multiple. An exception would be a single spot from an insect bite or other traumatism. Various descriptive terms which do not represent any essential differences are used to indicate the different forms of the eruption. Macules of pinhead to pea size are called petechiæ and those of coin or palm size or larger, ecchymoses. If distinctly elevated, they are known as ecchymomata or hematomata. The rather unusual word vibices is used to indicate hemorrhage in lines or streaks. The characteristic symptom of purpuric lesions is that they do not disappear on pressure. The red blood-cells and the pigment resulting from their disintegration are in the meshes of the cutis and subcutaneous tissue and cannot be momentarily removed by pressure as in erythema and urticaria. Furthermore, purpuric lesions remain after death. The color is bright red at the outset but soon becomes bluish or purplish and in the course of involution, color changes (brownish, greenish and yellowish) take place, similar to those observed in an ordinary bruise. Purpuric spots may form large patches by coalescence but as a rule do not enlarge by centrifugal extension. They have been known to appear, however, in an annular form as in the cases reported by Duhring, Stelwagon and others. The location of purpura is influenced by gravity, the eruption in most cases affecting the legs. Less often it appears in addition on the lower and inner third of the thighs, the arms, or, in fact, on any part of the body including the mucous membranes. The face is usually spared, even in rather extensive cases. The lesions themselves do not cause any subjective symptoms. Depending on the type of the disease in which they occur, subjective symptoms may be absent, moderate or severe. While the onset of purpura is sudden, its disappearance is slow, involution of individual lesions requiring two to three weeks. The majority disappear without trace. In some cases, chiefly in adults, there may be permanent pigmentation, especially of the legs. By constant outcropping of new lesions purpura may last for weeks, months or years.

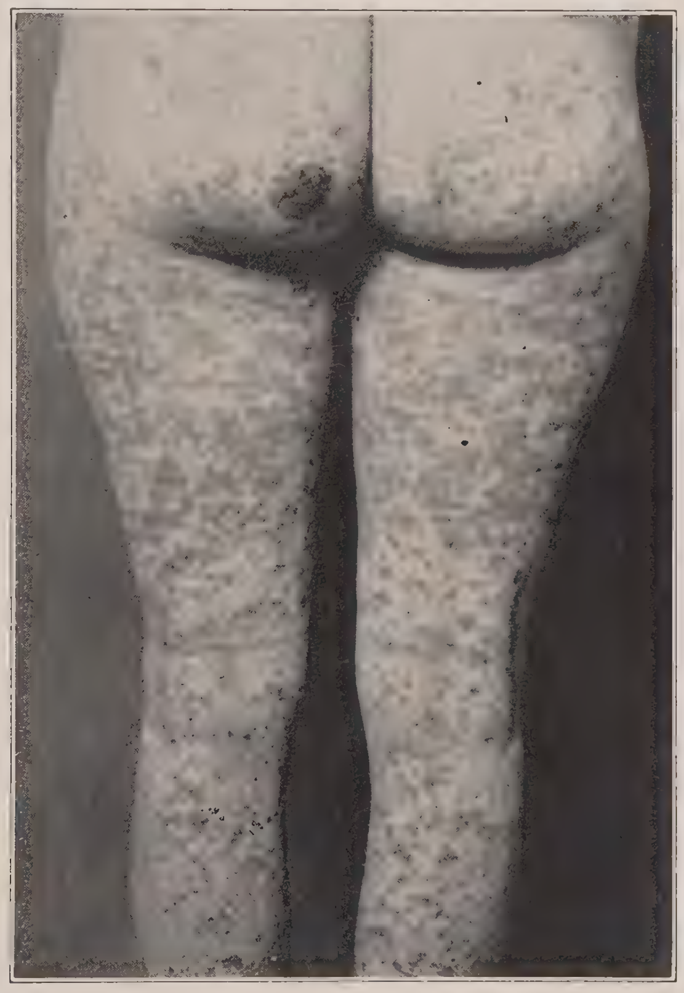

Fig. 31.—Purpura.

Although there is no entirely satisfactory classification of purpuras, it is convenient to divide them into primary and secondary, depending on whether the hemorrhage is the chief symptom or one of secondary importance. The same divisions are also spoken of as idiopathic and symptomatic. The usual description of the primary type includes purpura simplex, purpura rheumatica, Henoch's purpura and purpura hæmorrhagica. The first three may, in typical cases, be readily differentiated, but there are many border line cases which may make it difficult to designate them with precision. As their causation is only surmised the differentiation between them is solely clinical. The fourth type, however, differs essentially from the other three in changes affecting the blood-platelets.

Purpura simplex is not uncommon in children and young adults. It consists principally of petechiæ with occasional small ecchymoses. It occurs chiefly on the lower extremities, though in addition the arms may be involved. There may be only a single attack lasting two or three weeks or through a succession of attacks the process may be prolonged for months or even years. Stelwagon speaks of a young girl who had suffered from such a condition for five years. As a rule there are no subjective symptoms and the patients appear to be in good general health. With the simple purpura, occurring on the legs of an elderly person, often in association with varicose veins, we are not concerned.

Purpura rheumatica or peliosis rheumatica was first described in 1837 by Schönlein after whom it is often called. It is a rare disease which occurs most often in young adult males. Its onset is sudden with sore throat and usually rather severe constitutional symptoms. The eruption is a combination of purpura, urticaria and erythema multiforme. There may be angioneurotic edema and lesions suggesting erythema nodosum. Albuminuria and occasionally endocarditis and pericarditis have been observed. Sloughing of the uvula was noted by Osler. The duration is three or four weeks with a tendency to recurrence. It may occur annually as in some cases of erythema multiforme. The disease is occasionally fatal.

Henoch's Purpura.—This was first described by Henoch in 1874; it is rare and is seen principally in children. It is similar to rheumatic purpura with the addition of abdominal symptoms, supposedly due to hemorrhage into the intestinal mucosa. These so-called gastro-intestinal crises include attacks of colicky pains, vomiting and diarrhea which may suggest intussusception. The temperature and pain and swelling in the joints are likely to be mild. There may be hemorrhages from the mucous membranes, albuminuria or hemorrhagic nephritis. The disease may recur during the course of several years. Of sixty-one cases collected by Osler, thirteen were fatal.

Purpura hæmorrhagica, also known as land scurvy or morbus maculosus of Werlhof, is uncommon. It affects children of school age. The onset may be sudden and severe, or the disease may start as a simple purpura and later change in type. The eruption may appear on any part of the cutaneous surface, often with ecchymoses and at times ecchymomata. Purpuric lesions are seen on the visible mucous membranes. The disease is characterized by hemorrhages from the mucous surfaces, which arise spontaneously or after traumatism. Thus bleeding may occur from the nose, mouth, stomach, intestines or uterus. It is often alarming and the cause of secondary anemia. While the temperature is not high, there is usually considerable prostration, at times simulating that of typhoid fever. An attack usually runs its course in from two weeks to two months or more. Recurrences are not uncommon and the disease in this way may last for years. The prognosis is usually good, though death may occur from loss of blood or cerebral hemorrhage. Purpura hæmorrhagica differs from the other types described above, not only in the hemorrhages from the mucous membranes but in the marked reduction in the number of blood-platelets. This may be as low as one thousand per cubic millimeter according to Duke and the bleeding time is much increased. There is no retraction of the clot with expulsion of serum.

In extremely rare cases, especially in children, a rapidly fatal type known as *purpura fulminans* has been observed. Associated with chills, high temperature, delirium and stupor there are extensive hemorrhages mainly in the skin. Such patients live only a day or two after the onset of the disease. According to Osler, death may occur before any bleeding takes place from the mucous membranes.

Secondary (Symptomatic) Purpura.—This includes a large number of well-recognized conditions in which the hemorrhage is merely one symptom, often, however, indicating unusual severity. Mechanical causes such as prolonged constriction, coughing spasm or epileptic fit may be followed by purpura. Toxic causes include the eruption following snake bite, administration of serums and certain drugs such as the iodids, quinin, chloral, belladonna and arsphenamin. Purpuric lesions occur with regularity in typhus, cerebrospinal meningitis and Rocky Mountain spotted fever. They may accompany septicemia, malignant endocarditis, malaria and syphilis and are occasionally seen in smallpox, measles and scarlet fever. Secondary purpura may be present in certain chronic severe processes such as malignancy, tuberculosis, nephritis, diseases of the liver associated with jaundice and various affections of the blood, notably lymphatic leukemia. It has been observed in certain diseases of the nervous system such as tabes, myelitis and peripheral neuritis. In some skin affections, such as zoster, the bullous type of erythema multiforme and urticaria, cutaneous hemorrhages may occur.

ETIOLOGY AND PATHOLOGY

The cause of primary purpura is unknown, bacteriological findings thus far having been negative. According to Glanzman the rheumatic and abdominal forms are due to a condition suggesting anaphylaxis. The hemorrhagic type, as has been mentioned, shows a marked reduction in blood-platelets with an increase in bleeding time. The causes of secondary purpura may be grouped as vasomotor, toxic and infectious. The method by which the blood escapes from the vessels has been the source of considerable difference of opinion and need not be here discussed. Histologically the extravasation is found in the cutis and subcutis but may raise the epidermis to form hemorrhagic vesicles or bullæ. The hemoglobin is dissolved and partly absorbed or crystallized in the tissues.

DIAGNOSIS

There is little difficulty in recognizing purpuric lesions as their color cannot be made to disappear under pressure. Purpura hæmorrhagica is distinguished from true hemophilia, the latter showing a remarkable hereditary transmission, normal platelet count, retarded coagulation time and absence of the tourniquet sign. This phenomenon (Rumpbell-Leede) consists in the production of petechial spots in the bend of the elbow when a tourniquet is applied to the arm for five minutes with sufficient force to make the parts cyanotic but not to obliterate the pulse. Petechial spots due to bites of fleas or bedbugs are distinguished from spontaneous purpura by their location, those due to fleas being chiefly on the body and those due to bedbugs about the ankles and legs. They are few in number, of uniform size as a rule and disappear rapidly under proper care. Scurvy will be discussed below. It is not always easy as Feer suggests to differentiate spontaneous hemorrhage from that due to traumatism through maltreatment, in which case the tourniquet test might be of value as this is a general test for those who exhibit a purpuric tendency.

TREATMENT

In any case of purpura an attempt should be made to find a focus of infection and remove it if possible. Rest in bed is essential for all except mild cases of simple purpura and appropriate general measures for febrile cases. Many drugs have been used for purpura and some of them, such as iron and ergot, have been practically given up at the present time as of little or no value. Oil of turpentine is recommended by Osler and by Crocker, arsenic in full doses by MacCree and calcium chlorid (to be taken for three or four days) by Wright. None of them are of constant value. Other measures include injections of sterilized gelatin, human or foreign serum and coagulen (extract of blood-platelets). In cases of purpura hæmorrhagica, blood transfusions have been of value and more recently apparent cures have been obtained by extirpation of the spleen as reported by Giffin and Halloway. For severe symptomatic purpura, MacGowan recommends ten drops (for an adult) of a 1 : 1000 solution of epinephrin, given every two hours by mouth or hypodermically.

INFANTILE SCURVY

Infantile scurvy is the title given to a rare deficiency disease of infancy and early childhood. It was first described by Barlow after whom it is frequently called. It is a purpuric affection but merits a separate description from the fact that its cause is definitely known.

Symptoms.—The disease consists of painful and tender swellings of the lower extremities, a spongy or puffy condition of the gums and hemorrhages in the skin or less often the mucous membranes. The lesions of the thighs and legs are extremely tender and are due to subperiosteal hemorrhages in the diaphyses, mainly of the femur and tibia. The spongy condition of the gums is seen about the teeth already present and over those that are about to erupt. The gums may also show ecchymosis. The cutaneous hemorrhages are similar to those of purpura hæmorrhagica. Bleeding from the stomach, intestine or into the orbit may also be present.

Etiology.—Infantile scurvy is due to a deficiency in the antiscorbutic vitamin C. This is easily destroyed by oxidation and heat and is absent from proprietary infant foods and from milk which has been sterilized. According to statistics of the American Pediatric Society, of 379 cases (quoted by LaFetra) the disease occurred as a rule between the ages of seven and fourteen months. The infants were mainly from good hygienic surroundings. Cutaneous hemorrhages were noted in over 50 per cent of the patients, bleeding from the mouth or gums in about 25 per cent, and hematuria in 6 per cent.

Treatment.—This consists in giving food containing the needed vitamins, including fresh raw milk, orange juice, and green vegetables. The response to treatment is almost immediate and is most gratifying.

BIBLIOGRAPHY

Purpura

Duhring, L. A. Case report. Med. & Surg. Reporter, Philadelphia, 1878, 39:98.

Duke, W. W. The Pathogenesis of Purpura Hemorrhagica with Especial Reference to the Part Played by Blood Platelets. Arch. Int. Med., Chicago, 1912, 10: 445.

Feer, E. The Diagnosis of Children's Diseases, Philadelphia, J. B. Lippincott & Co., 1925, p. 120.

Giffin, H. Z., and Halloway, J. K. A Review of Twenty-eight Cases of Purpura Hemorrhagica in Which Splenectomy Was Performed. Am. J. M. Sc., Philadelphia, 1925, 170: 186.

MacGowan, G. The Use of Adrenalin Chloride in Hemorrhages and Angioneurotic Diseases of the Skin. J. Cutan. Dis., New York, 1905, 23:72.

Osler, W. The Principles and Practice of Medicine, New York, D. Appleton & Co., 1925, p. 120.

Stelwagon, H. W. A Case of Purpura with Circinate Lesions. J. Cutan. Dis., New York, 1887, 5: 369.

Infantile Scurvy

LaFetra, L. E. Infantile Scurvy: Its Manifestations and Diagnosis. Am. J. M. Sc., Philadelphia, 1907.

CHAPTER V

URTICARIA AND PRURIGO

URTICARIA

Urticaria, known as hives or nettle rash (Latin, *urtica,* a nettle), is a common disease of children as well as adults. The special type known as papular urticaria, which is peculiar to childhood, will be subsequently described.

Symptoms.—The onset is always sudden and may be accompanied by constitutional symptoms such as malaise, headache, fever and evidence of gastro-intestinal irritation. The characteristic lesion of urticaria is the wheal, familiar to all as the ordinary mosquito bite. The eruption may appear on any part of the skin, though it is more often seen on the covered areas where there is pressure or friction from the clothing. Occasionally the mucous membranes of the mouth, pharynx and larynx are involved. The individual lesions vary in size from a bean to a finger nail but may be much larger and cover extensive areas of the body as a solid, diffuse eruption. They may appear as circles or portions of circles, as streaks or curious gyrate figures. The lesions are firm, elevated, fairly well defined and of a pinkish color. At the height of the process, the central portions are whitish with erythematous border. At times when the process is intense, some of the wheals may be surmounted by vesicles or bullæ. Occasionally they are hemorrhagic, thus forming a connecting link with purpura. After involution, such lesions may be followed by temporary pigmentation, the condition being spoken of as urticaria with pigmentation. This should not be confused with urticaria pigmentosa, a totally different affection of congenital origin, which has been previously described. Different types of erythema may be associated with urticaria, there being a distinct relationship between the erythemas, urticaria and purpuras. Urticaria is apt to be most pronounced in the afternoon and at night.

Subjective symptoms are always present and are often distressing. They consist of itching, burning or tingling, the patient rubbing rather than scratching the lesions. The ordinary type of urticaria shows little or no excoriations.

Course.—The individual wheals last only a short time, varying from minutes to hours. By successive crops of lesions the process may be indefinitely prolonged, constituting a most obstinate and difficult disease to treat. Fortunately this type is not often seen in children. While the individual lesions nearly always undergo a rapid involution, some of them persist at times for weeks, and the condition is then spoken of as urticaria perstans, analogous to erythema perstans. The average attack of ordinary urticaria in children, exclusive of the papular type, is mild and seldom lasts more than a few days. Except for occasional pigmentation as above mentioned, it disappears without leaving any trace.

It is frequently stated that one of the symptoms of urticaria is the ability to produce wheals artificially by sharply striking the skin with the finger nail or some blunt instrument. This phenomenon is known as factitious urticaria or *dermographism.* It is only in the exceptional cases of urticaria in my experience, that letters or figures can be caused to appear by stroking the skin. Darier says it is "noteworthy that dermographism does not often occur in association with common urticaria." Objectively the lesions are similar to hives but ordinarily they do not cause much itching and at times none at all. The condition is thought to represent a neurotic constitution and is not infrequently associated with certain mental and nervous diseases. These artificial wheals may remain for twenty minutes to an hour or more and are rather striking subjects for photography. (See Fig. 32.)

Etiology and Pathology.—There are few diseases which are produced by so many apparently diverse causes. These are both external and internal. The former include irritating plants, insects, friction, heat, cold and light. The internal causes are more important. They include various foods (notably, shellfish and strawberries), serums, various drugs, diseases due to animal parasites and bacteria, disturbances of metabolism and elimination and especially gastro-intestinal disorders. The modern view is to consider the majority of these causes as having an allergic action even though some of them are not of a proteid nature. The etiology is apt to be much simpler in children than in adults and is usually due to ingestion of some particular food. The offending food is usually one to which the child has either an hereditary or an acquired sensitiveness. Cases of urticaria in nursing infants are at times due to sensitization through the mother's milk. The substances causing urticaria may have been taken in very small quantities such as a single strawberry, one grain of quinin, or a tiny amount of egg albumin.

The pathologic process was formerly considered to be an angioneurosis. From the work of Phillipson, Gilchrist and others, it would appear that the disease is an actual inflammation, due to a toxin acting locally on the vessels. The wheal itself is due to a sudden contraction of the blood-vessels (according to Unna, the veins) followed by dilatation of the arteries. The increased supply of blood in the arteries, blocked by contraction of the veins, causes the exudation of serum.

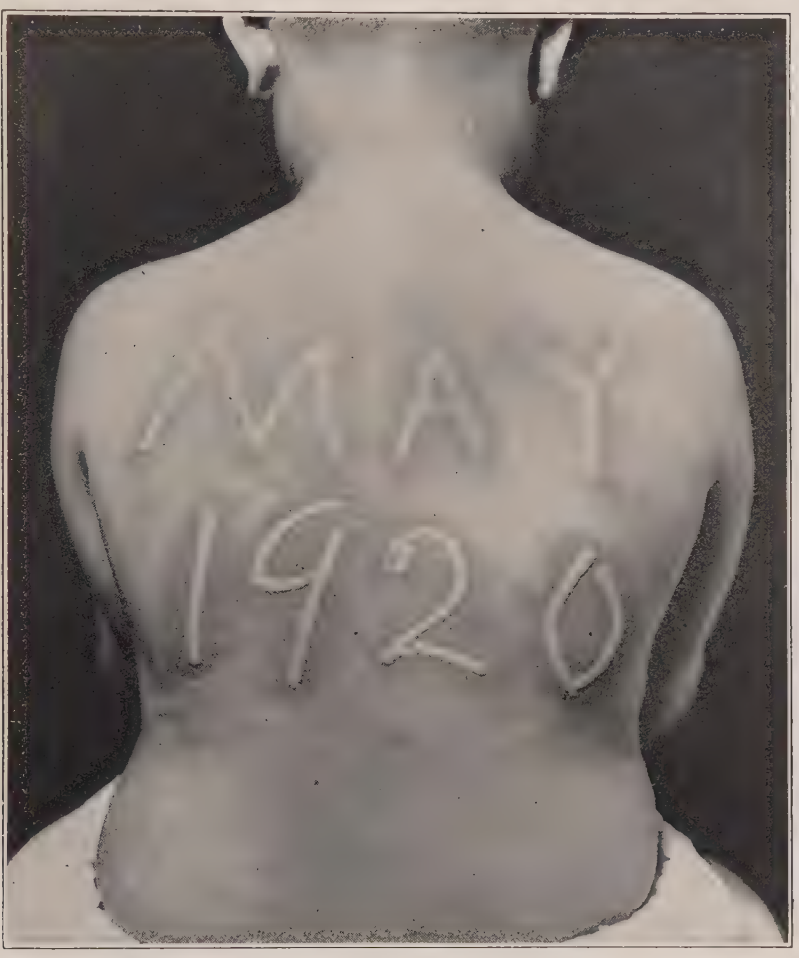

FIG. 32.—URTICARIA FACTITIA (DERMOGRAPHISM).

Diagnosis.—The diagnosis of urticaria is usually easy. It is evident from the ephemeral nature of the lesions, their situation on covered parts and from the subjective symptoms. Lesions of erythema multiforme are more persistent and subjective symptoms are slight. The unusual cases of urticaria with vesicular or bullous lesions may be confused with dermatitis herpetiformis but wheals are usually present.

Treatment.—The ordinary acute attack of urticaria in childhood runs a rapid course and requires little treatment as a rule. If seen at the outset an emetic may be given though this is rarely necessary. A purge of castor oil or calomel, followed by salts, should be given and a simple diet prescribed. Alkalis may be used and if the eruption is at all persistent, intestinal antiseptics such as salol or charcoal may be tried. During the attack, the bowels should be kept open and a liberal amount of water ingested. Pediatricians (quoting Finkelstein and co-authors) in general recommend a vegetable diet, with restriction of milk and exclusion of eggs. In more severe cases, egg albumen should be completely excluded from the diet. In cases of recurrent hives attempts to find the cause should be made, and for this purpose the protein skin tests may be of value. They are more likely to be helpful in children than in adults as their dietary is comparatively simple.

In the more chronic and obstinate cases, which are not often seen in children, many drugs have been recommended, most of them being used empirically. Calcium salts as recommended by Wright have been used with varying results. Their use is based on their tendency to increase coagulability of the blood and to overcome anaphylactic shock. In his experience with calcium lactate in twenty-three cases, C. J. White saw a great improvement in twelve cases, slight improvement in two and none in nine cases. The proprietary German preparation Afenil, a combination of calcium and urea, has been rather extensively used in urticaria by intravenous injection. I have found temporary improvement in some adult cases, though I have not used it for children. It is well known that a severe eruption of hives may be made to disappear by subcutaneous injections of epinephrin (about 8 to 10 minims of a 1 : 1000 solution for adults, with corresponding dosage for children). The results are, however, only temporary. Other measures for obstinate cases include autoserum therapy, bloodletting, followed by injections of normal salt solution, or the production of a protein shock by typhoid vaccine or other means.

Prognosis.—This is favorable as the disease in children is usually of a mild type and of short duration.

ANGIONEUROTIC EDEMA

Angioneurotic edema is also known as acute circumscribed edema or giant urticaria. It was first described by Bannister, an American physician in 1880, though the disease is frequently linked with the name of Quincke who wrote about it two years later. It is an uncommon affection.

Symptoms.—The onset is extremely sudden and may or may not be accompanied by mild constitutional symptoms. The eruption occurs most often on the face and extremities, especially about the eyes and lips, and less often on the genitals. It may involve the mucous membranes of the mouth, pharynx, larynx and the gastro-intestinal canal. The lesions appear as circumscribed swellings varying in size from a cherry to a hen's egg or more, attaining their maximum development in a few seconds to a few minutes and less often in an hour or so. The swelling of the hands has been compared to a pair of lightweight boxing gloves by Osler, while lesions on the trunk have suggested the appearance of plates or saucers. The color may be pinkish, waxy or that of normal skin. The lesions are firm, elastic and do not pit on pressure as does ordinary edema. The overlying skin is smooth but may occasionally show the presence of bullæ. Its temperature may be higher or lower than that of the surrounding parts. The lesions are usually single. If multiple they are likely to be asymmetrical, though at times both hands or the entire face may be affected. Extraordinary deformity and distortion of features may result while lesions are present. In association with this disease may be seen ordinary lesions of urticaria, erythema or purpura. The subjective symptoms are mild and consist of a sensation of tenseness and occasionally warmth, rather than the itching and burning of hives.

The course of an individual lesion is short, complete disappearance taking place in a few hours or at most one or two days. The process may, however, be indefinitely prolonged for weeks, months or even years by successive crops of lesions. The disease also tends to recur at varying intervals, at times during the entire period of life. The tendency to cause edema of the glottis is a serious feature, death having resulted in thirty-six of 170 cases tabulated by Bullock.

Etiology and Pathology.—Angioneurotic edema is seen most often in young adults but may affect older children and has been observed in infants six to twelve weeks old. It occurs in both sexes and particularly in the higher strata of society. The influence of heredity is often striking, Ensor having reported forty-nine cases in seven generations with twelve deaths from edema of the glottis. Osler has recorded twenty-two cases in five generations with two deaths. The disease is considered by some to be a form of urticaria as it has a similar etiology and pathogenesis. Its clinical manifestations and especially the protracted course and possible fatal termination are sufficient to classify it as an entity, though closely related to urticaria.

Diagnosis.—The ephemeral course of the sharply defined elevations is characteristic and can hardly be confused with localized edema from lymphatic obstruction or with the early stage of scleroderma. Involvement of the gastro-intestinal mucosa may cause colicky pains and as a result mistakes in diagnosis have been made and abdominal operations needlessly performed.

Treatment.—The chief aim of treatment is to ascertain and remove the cause. As in severe chronic urticaria of adults this is often difficult or impossible. Good results were obtained by Osler with large doses of nitroglycerin and by Darier with calcium chlorid. An attack may be relieved by an injection of epinephrin.

Prognosis.—This must be guarded, as the disease may have a protracted course, and death, from edema of the glottis, is possible.

PAPULAR URTICARIA

(*Lichen Urticatus*)

The disease originally described by Bateman in 1824 has been the source of much confusion, which even persists to a degree at the present time. Although the true nature of the disease was recognized by Bateman, much of the accurate knowledge concerning it is due to the studies of Colcott Fox. It has been called by many names including strophulus, lichen urticatus (Bateman), and prurigo simplex acutus (Brocq), while in America the term papular urticaria is usually employed.

Papular urticaria of infancy and childhood is a more common and important disease than would be supposed by the comparatively small mention made of it by American authors. Some cases are doubtless classified as papular eczema and confusion with scabies is not infrequent. Its apparent rarity in this country may be due to the general feeling as expressed in a statement by Highman that it is "a not very well-defined disease of childhood." It is certainly true that the clinical picture is often varied. In the opinion of Colcott Fox and others the disease is a true urticaria, taking on a special form in infancy and childhood. He states that the special feature is the formation of a papule in the center of a wheal, the former remaining after the wheal has subsided. He regards papular urticaria as "*the* urticaria of infancy and childhood." Adamson states that the disease is "one of the most common eruptions of childhood, so common indeed that probably hardly any child escapes it in some degree." It is often stated that this affection is especially common in England as would appear from the above statement of two distinguished English dermatologists. In France, however, it must also be common, judging by the remark of Darier that it is "of extreme frequency in early childhood." In my opinion it is not uncommon in America.

Symptoms.—The onset may be sudden or more or less gradual. It usually consists of a generalized eruption which may be sparse or profuse and as a rule bilateral. It may occur on any part of the body but is seen most often on the trunk, buttocks and extensor aspect of the extremities. It may occur on the palms and soles and according to Colcott Fox it is frequent on the face. It does not affect the mucous membranes. The lesions are essentially discrete, though occasionally they may be closely aggregated. At any rate they do not form solid patches as does eczema. There may be a dozen or two lesions or they may appear in large numbers. Adamson states that he has seen "almost the whole body covered with closely set papules." Ordinarily, however, the eruption is not very profuse.

The lesions appear chiefly at night like ordinary urticaria. They are ill-defined wheals or small reddish blotches, in the center of which small firm papules appear and on the summit of which minute vesicles are often seen on close inspection. The urticarial element may be momentarily effaced by pressure and the papule become more prominent. The papule is the characteristic lesion and is usually the size of a large pinhead though at times as large as a lentil. Occasionally vesicles or even bullæ may complicate the picture. An example of bullæ ocurring on the sole is shown in an illustration of the book by Finkelstein, Galewsky and Halberstaedter. The vesicular forms may closely simulate varicella.

Itching is the essential feature and is often severe; occurring especially during the night it may interfere with sleep and injure the general health. As in any chronic itchy dermatosis, there may be secondary infection, such as impetigo, though this is not as common as in scabies. In some of the severer cases there may be more or less adenopathy. Disappearance of lesions may be followed by temporary pigmentation and rarely by slight scarring.

The duration of individual lesions may be only a few days or one or two weeks. They appear, however, in successive crops which may overlap and present different stages of evolution. In this way, the process is continued for weeks, months or even years. Beginning in many cases in the second half of the first year, the disease persists until the end of the third year. In other cases it begins later and may last until the sixth or eighth year, rarely continuing after puberty. In some cases papular urticaria constitutes the first stage of true prurigo. With rare exceptions, it gradually lessens in extent and disappears completely.

Etiology and Pathology.—Papular urticaria affects both sexes equally and is seen somewhat more frequently in hospital than in private practice. As a rule not more than one child in a family is affected. It appears more frequently and is more severe during the warm months of the year. Various causes have been suggested, many considering that the factors producing ordinary hives are active in producing the papular type. Overfeeding, constipation and gastro-intestinal disturbances may play a part, and the disease has followed attacks of grip, varicella and vaccinia. Dentition and intestinal worms have also been blamed, probably incorrectly as causative factors. It is rather refreshing to read the statement of so good an authority as Adamson that "we are ignorant of its cause," an opinion shared by some of my pediatric colleagues and by myself. According to Jonathan Hutchinson the disease may be produced by bites of insects. Chipman, who states that the disease is not uncommon in California, thinks that bites of fleas may be causative.

Diagnosis.—Scabies is frequently mistaken for papular urticaria, both affections being chronic, extremely itchy and situated largely on the covered parts. Scabies is recognized by burrows on favorite sites, the history of its occurrence in other members of the family and the prompt response to treatment with sulphur or balsam of Peru. The vesicular type of papular urticaria may at times resemble varicella so closely that differentiation is for a short time impossible. The lesions of chickenpox, however, usually involve the face and may affect the scalp and buccal mucosa. I recently had occasion to see such a case at the Willard Parker Hospital in which expert opinions were evenly divided. Papular erythema multiforme is not likely to occasion severe itching, and papular eczema consists of larger lesions with a marked tendency to coalescence and formation of patches. In the course of their evolution, the lesions of papular urticaria may flatten and resemble those of lichen planus. The latter disease, however, presents no wheals, is rare in childhood and extremely so in infancy. It is not unlikely, as Foerster suggests, that supposed cases of lichen planus in infancy have been thus misinterpreted. It is not likely that the diagnosis would be often confirmed by biopsy in these youthful patients. The differentiation of papular urticaria from prurigo is frequently difficult or impossible in view of the fact that the early stage of prurigo appears in the form of papular urticaria.

Treatment.—The treatment is symptomatic and consists in improving the general health and in relieving the itching. Attention should be paid to improper diet, gastro-intestinal disturbances and other constitutional disorders. Local treatment is important. Antipruritic powders and especially lotions are of the most value in the ordinary papular types (see Formulary). Medicated baths vary in their effects in different cases. Adamson suggests that warm baths be given in the morning and not before going to bed as at that time the skin appears most irritable. All sources of external irritation should be eliminated, as overthick or rough clothing, overheated rooms, excessive exercise and animal parasites.

Prognosis.—This is good as a rule, though the disease may be persistent and at times may be the early stage of prurigo.

PRURIGO

The term prurigo (Latin, *prurire,* to itch) has been the source of a good deal of confusion. Darier speaks of prurigo vulgaris under which he includes various types of localized and generalized forms of lichenification. The name is, however, usually confined to the disease described by Hebra of which there are two forms, prurigo mitis and prurigo ferox. The rare disease known as prurigo nodularis is seen only in adults and will not be considered in this volume.

Symptoms.—According to Kaposi, the disease begins between the eighth and twelfth months of infancy but more recent observers state that it may appear earlier or much later, even as late as the twenty-ninth year (Ehlers). At the outset and for a year or two, the eruption is apparently identical with the papular urticaria of childhood. The urticarial element then disappears and the characteristic papules of the disease are seen. These are slightly elevated, firm, round lesions varying from a millet to a hemp seed in size and are of a reddish or normal flesh color. They are discrete but may be closely aggregated. Their favorite sites are the extensor surface of the legs and arms, the sacral region, buttocks, and, less often, the face and side of the neck. In severe cases the trunk is also involved. The flexor surfaces are spared. The affected skin is dry, does not perspire and feels like a nutmeg grater. It has a dirty grayish or brownish color. Itching is always present and is usually severe. As a result of prolonged scratching, there is secondary infection, the skin becomes thickened and pigmented and the glands in anatomical relation to the affected areas enlarge and at times suppurate. The thickened skin may be lichenified or eczematized. The papules are discrete, though in severe cases they are closely aggregated and eventually, from long-continued scratching, the affected surface may strongly resemble eczema. Loss of sleep from itching, in the severe cases, seriously impairs the health and strength of the child and may cause mental depression. Adenopathy is especially marked.

The two types of the disease described by Hebra (mild and severe) do not differ in any essential feature. They merely represent grades of severity, the mild type presenting fewer lesions, being less itchy and generally amenable to treatment.

The course of the disease is marked by exacerbations and remissions, being usually less severe in warm weather and when under proper treatment. Prurigo mitis tends to lessen in severity or to disappear during the first few years following puberty. Prurigo ferox persists as a rule through life. In an analysis of fifty-nine cases followed by Ehlers for twenty years, the disease appeared in twenty-three cases and improved in four. The others were unimproved or died.

Etiology and Pathology.—Prurigo is essentially a disease of the poorer classes who live under bad hygienic conditions. It is said to be twice as common in males as in females. It is not an inherited disease nor is it contagious. Cases have been recorded where more than one member of a family were affected. The cause is unknown and suggestions about a "neurotic basis" or sensitization to autotoxins are mere speculation. There is apparently no relationship to tuberculosis as Boas has shown by injections of tuberculin in twelve cases. The disease, especially in its severer aspects, has been principally observed in Austria and Hungary. Prurigo ferox is extremely rare in this country and even the mild type is uncommon. Histologically the lesions show evidence of simple inflammation without characteristic features.

Diagnosis.—Since prurigo begins as a papular urticaria, the differential diagnosis between the two affections is difficult or impossible in the early stages. Gradually, however, the lesions change in character, become localized, especially on the extensor surface of the legs, and are associated with adenopathy. Well-marked cases of prurigo may be difficult to distinguish from papular eczema, as they are likely to show more or less secondary eczematization and as a history of long duration starting from infancy may be obtained in either case. The diagnosis of prurigo is favored by the more uniform character of the lesions, their absence on the flexures, the adenopathy and the less favorable response to treatment. A prurigo-like eruption is not infrequently seen in leukemia and Hodgkin's disease.

Treatment.—Prurigo requires general and local treatment, both of which are always helpful. Treatment is apparently curative in the mild cases, but only palliative in the severe ones. The advice so often given to his former students by my father, George Henry Fox, to put the patient in the best possible physical condition, applies especially to this disease. This includes good nourishing food, fresh air and sunshine, proper exercise, cod liver oil, iron and other tonics. Rest in bed and a liberal diet have often been helpful. The bowels should be kept open, diuresis promoted by acetate of potash or other alkaline diuretics, or at times by hot packs. The indications are to promote sweating if possible and to soothe and soften the skin. Baths containing a pound or two of bran or preferably starch are often soothing to the inflamed skin. Sulphur baths, with Vleminckx's solution (see Formulary) may also be used. Kaposi recommends naphthol ointment (1 to 2 per cent for children) to be rubbed into the skin every night and baths to be given every two or three days with sulphur and naphthol soap. Ultraviolet rays have been claimed to be of some value.

Prognosis.—This is favorable in the mild cases, though the course is protracted. It is unfavorable if improvement does not appear at puberty, in which case the disease persists through life.

BIBLIOGRAPHY

URTICARIA

BULLOCK. The Treasury of Human Inheritance. 1909, Part III.

WHITE, C. J. The Use of Calcium Lactate in the Treatment of Certain Dermatoses. J. Cutan. Dis., New York, 1914, 32:691.

PAPULAR URTICARIA

CHIPMAN, E. D. Cutaneous Reactions. J. Am. M. Ass., Chicago, 1912, 59: 106.

FOERSTER, O. H. Abt's Pediatrics. Philadelphia, W. B. Saunders Co., Vol. VIII, p. 141.

FOX, T. C. On Urticaria in Infancy and Childhood. Brit. J. Dermat., London, 1890, 2: 133.

PRURIGO

EHLERS, E. Communication provisoire concernant une série de recherches cliniques sur le prurigo de Hebra. Ann. de dermat. et Syph., Paris, 1892, 3: 861.

KAPOSI, M. Pathologie und Therapie der Hautkrankheiten. Wien und Leipzig, 1880, p. 441.

CHAPTER VI

VESICULAR AND BULLOUS DISEASES

Herpes, derived from the Greek word to creep, was originally used to indicate eruptions in which spreading was a feature. At the present time the word herpes signifies a group of lesions which are usually vesicular and situated on an erythematous base. There are two forms, herpes simplex and herpes zoster, which have certain features in common but are clinically distinct affections. The former is often spoken of simply as herpes and the latter as zoster.

HERPES SIMPLEX

Simple herpes, known as "cold sore" or "fever blister," is a common disease of childhood, especially after the third or fourth year.

Symptoms.—Before the onset of the eruption there may be a feeling of tension or burning for a few hours. The lesions appear as one or more groups of closely set vesicles on a slightly elevated reddened base and while they are usually discrete they may coalesce. There may be two or three, or two or three dozen vesicles in a patch. They are pinhead or larger in size and do not rupture easily. Their contents are yellowish at the outset, later becoming turbid. They are occasionally hemorrhagic. At the end of two or three days the lesions dry and form crusts which fall at the end of a week or ten days. They leave no trace except a slight redness but never any scars unless secondarily infected. There may be one or two groups of vesicles or a dozen or more in extensive cases. There is often a slight regional adenopathy.

There are two common sites in adults, the face and the genital region. In children the disease is seen principally on the face and only rarely on the genitals. The favorite sites for herpes facialis are the lips, nostrils, cheeks, ears and neck, the commonest location being the lower lip. It is not seen on the forehead. The eruption may occur at times in other localities, such as the buttocks and fingers, as in cases recorded by Adamson. Herpes may involve the mucous membrane of the nose, mouth, tongue, throat, larynx and even the esophagus. Vesicles are not often seen on mucous surfaces as they rupture quickly, but small tender abraded spots, with or without whitish shreds of epithelium, are sometimes noted.

Herpes occasionally involves the conjunctiva and even the cornea. Lesions at the corners of the mouth at times cause fissures.

Herpes simplex does not give rise as a rule to constitutional symptoms, though it frequently accompanies febrile and severe systematic diseases. Epidemics of "herpetic fever" in schools for boys have been reported by Seaton and by Savage. Seaton's report included 157 cases seen during a period of four months. There was typical herpes on the second or third day, of a well-marked febrile affection.

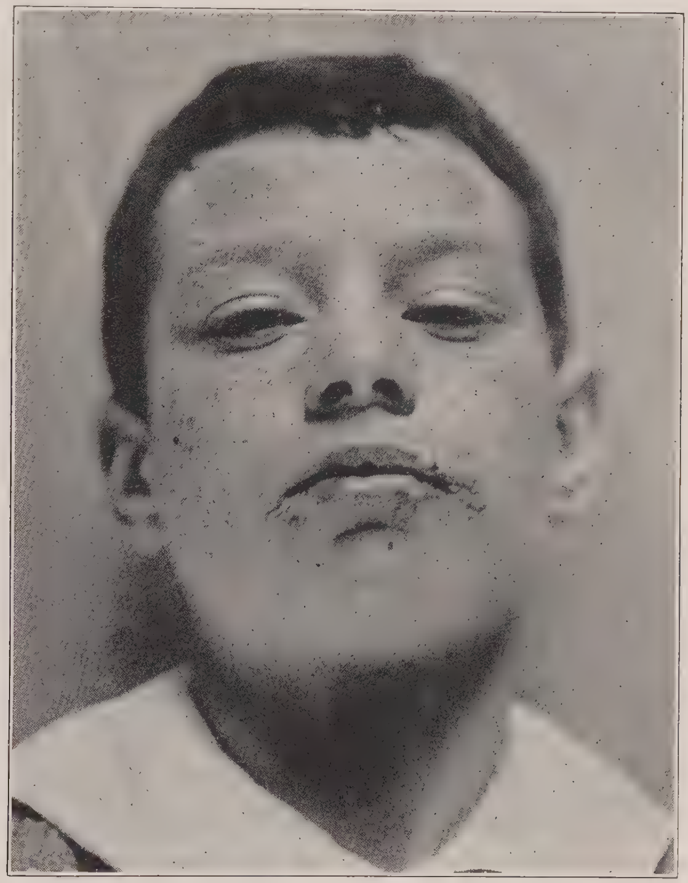

Fig. 33.—Herpes Simplex (Cold Sore).
Note bilateral distribution.

One of the striking characteristics of simple herpes is the tendency to recur, though this is best exemplified in the adult type affecting the genitals (herpes progenitalis). Recurrences may take place in the same or different areas for many years. Indeed, the tendency to recur constitutes the most important feature of the affection which is otherwise rather mild and harmless. Dubreuilh says of these cases of herpes facialis (quoting Adamson) that "the eruption always appears for the first time in early childhood, generally at about three or four years of age but sometimes earlier, that its duration appears to be indefinite and that the intervals between attacks vary from one month to one year."

Etiology and Pathology.—The cause of herpes simplex is not definitely known. It appears to be due to irritation or inflammation of the peripheral nerve-endings or ganglia by traumatism or more often by some infectious or toxic agent. Herpes also appears without apparent cause in perfect health. It may follow exposure to cold, wind, sunlight or traumatism. It may be associated with gastro-intestinal disturbances of various sources or reflex action, such as carious teeth or errors of refraction. It may appear with a simple cold or with any one of numerous infectious diseases. It is usually thought to be characteristic of cerebrospinal meningitis, occurring in 40 per cent of the cases according to Rolleston and also with the same frequency in malaria and lobar pneumonia. According

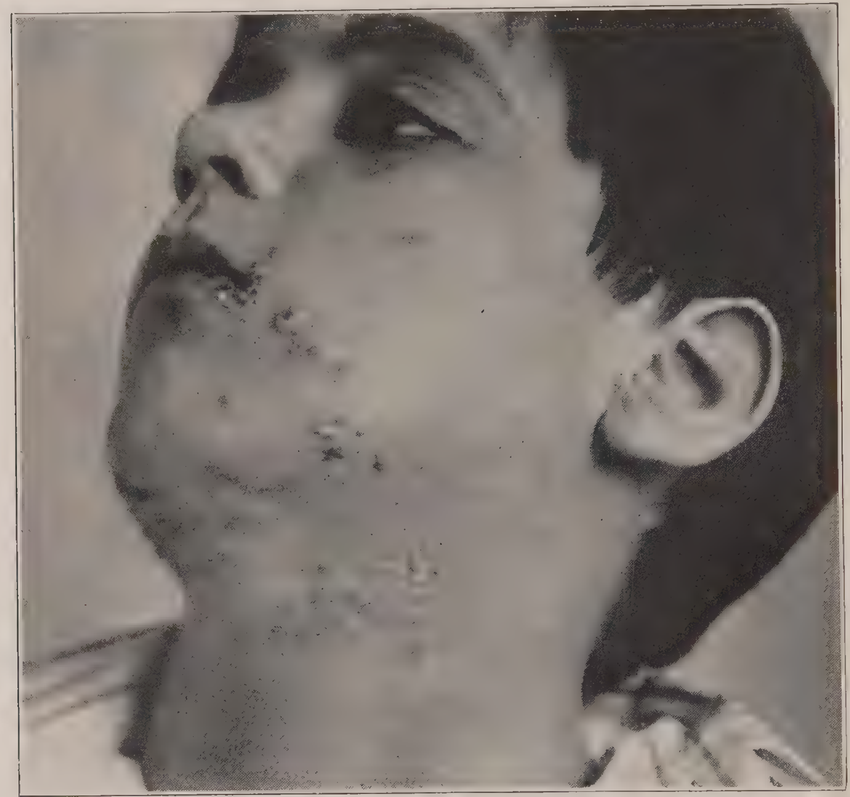

Fig. 34.—Herpes Simplex (Cold Sore) of Bilateral and Extensive Distribution.

to collective statistics made by Wells of some eighteen hundred cases, it occurred in nearly 31 per cent of cases of lobar pneumonia. In typhoid fever the occurrence varied from 1 to 5 per cent in different reports (quoted by Knowles), while in smallpox, according to Schamberg, herpes was only noted twice in a series of three thousand cases. More recently the disease has been experimentally produced in man as well as animals and according to Greenbaum and Harkins the virus is a filtrable one.

Diagnosis.—This is not difficult as a rule. At times when the vesicles of herpes are ruptured and secondarily infected an actual impetigo results. Simple herpes is differentiated from zoster by the unilateral distribution of the latter which usually follows the course of cutaneous nerves. A bilateral zosteriform eruption is almost certainly simple herpes. The disease is often seen on the cheek but not on the forehead, while the opposite is true of zoster.

Treatment.—In an ordinary case of herpes with unruptured vesicles little or no treatment is needed, though spirits of camphor, cologne water, camphor ice and other simple remedies are frequently used for the mild subjective symptoms. Nothing, as far as I know, shortens the natural course of the eruption, which is always self-limited in uncomplicated cases. When infection has occurred, a weak (2 to 3 per cent) ammoniated mercury ointment may be used. For painful fissures at the corners of the mouth compound tincture of benzoin or collodion are useful. The only real therapeutic problem is offered by the recurring cases, some of which have been apparently cured by the Roentgen rays. Arsenic has been advocated in this, as in so many other skin diseases, with frequently disappointing failures. Adamson says he knows of "no cure for this troublesome eruption," but thinks that quinin (2 or 5 grains) will sometimes abort an attack as also the local application of collodion before the vesicles have matured. In any recurring case a complete physical examination of the patient should be made and abnormalities corrected as far as possible. Simple regulation of the diet and the use of mineral oil resulted in the cure of a case mentioned by Highman.

Prognosis.—This is good for an individual attack, though recurrences may be frequent and difficult to control.

HERPES ZOSTER

Herpes zoster is named from its frequent location on the trunk which suggests a girdle. *Zoster* (Greek) and *zona* (Latin) signify a girdle as does the word *cingulum,* from which the common term "shingles" is derived.

Symptoms.—The eruption may be preceded by mild constitutional symptoms and frequently by burning or itching. The characteristic neuralgia which often precedes or ushers in the cutaneous lesions in adults is absent in children. The eruption consists at the outset of a varying number of erythematous areas on which pinhead or somewhat larger papules develop in a few hours or a day at the latest. These soon become vesicles which are closely aggregated and mostly discrete though a few may coalesce. They are tense and have thick walls and show little tendency to spontaneous rupture. There may be a few or several dozen vesicles in a patch. Their contents become turbid about the third day and on the fourth or fifth day they begin to dry and form crusts. The vesicles occasionally change to pustules from secondary infection following traumatism. In very rare instances hemorrhagic, ulcerative and gangrenous lesions may occur. The individual patches appear one after another and present dif-

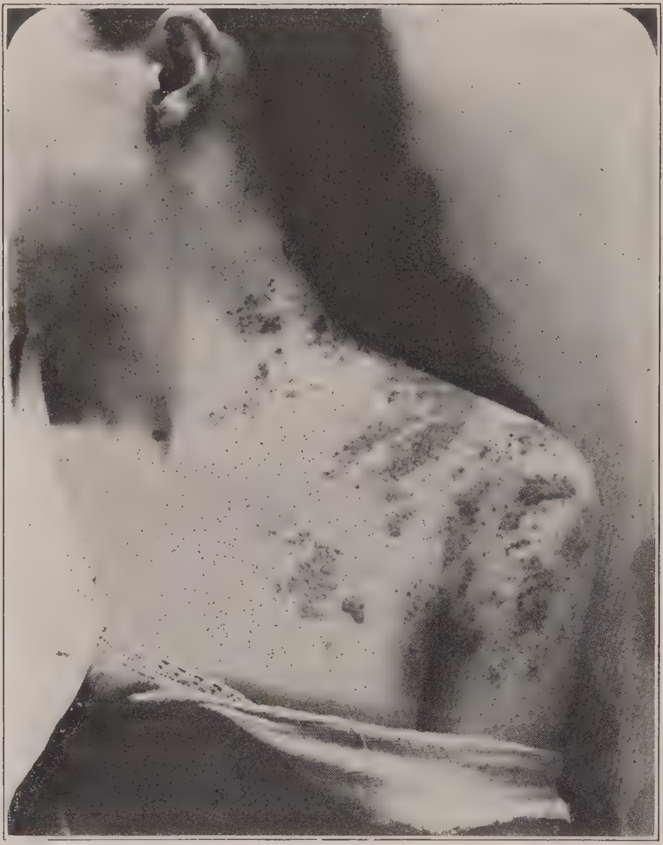

Fig. 35.—Herpes Zoster.
Note unilateral distribution.

ferent stages of evolution. At the end of two or three weeks the crusts fall and leave reddish or brownish spots which may persist for weeks. The scarring, which is so typical of many cases in adults, is much less common in children unless secondary infection has occurred. If present, it is seen most often in the intercostal and supra-orbital regions. The individual patches vary in number from one to a dozen or more. There are perhaps a half dozen of them in an average case.

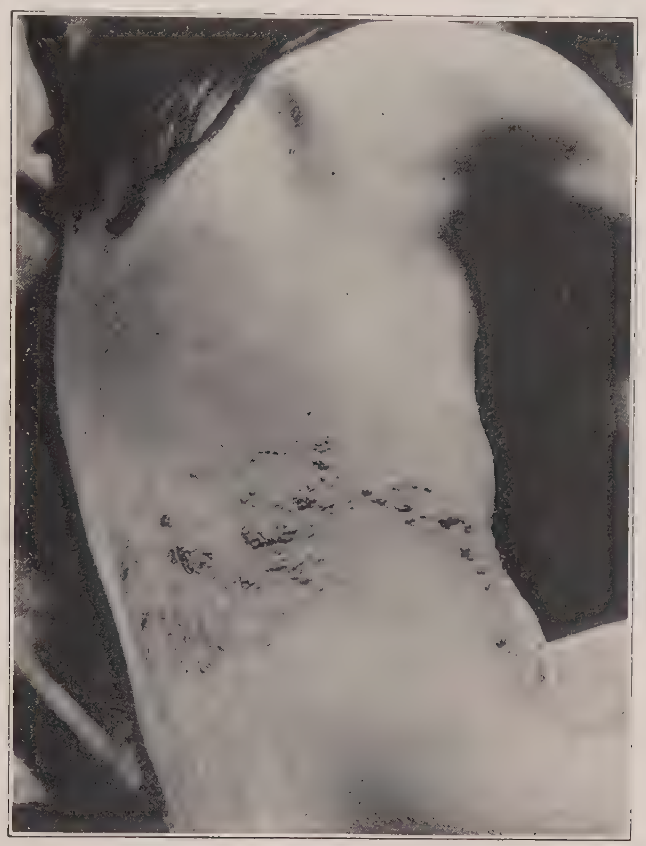

Fig. 36.—Herpes Zoster of Dorsal and Abdominal Distribution.
Note groups of shiny unruptured vesicles.

The distribution of herpes zoster is striking, being almost always unilateral. There is often, however, a slight extension beyond the median line. Bilateral distribution is extremely rare whether the affected areas are symmetrical or at somewhat different levels. In commenting on this fact, Stelwagon remarked that he was one of the many observers with large clinical opportunities who had never met with this form of the disease. I can distinctly recall a classic case of bilateral thoracic zoster in an adult male, seen twenty years ago in my father's former service at the Vanderbilt Clinic. I have subsequently reported another case. Bilateral zoster affecting a five-months infant was observed by Colcott Fox. The disease is generally said to follow the cutaneous distribution of one or more sensory nerves. It would be more accurate to say that it follows the distribution of fibers from one or more posterior root ganglia.

There are certain favorite sites for zoster for which descriptive Latin adjectives are often used. The most common site, especially in children, and the one from which the disease derives its name, is the chest and upper part of the back (zoster pectoralis). In this type the process involves as a rule the area supplied by nerves from the third to the eighth dorsal ganglia. Two or three intercostal nerves are usually included, the eruption following the direction of the ribs. There are often three main patches situated dorsally, laterally and anteriorly. The posterior patch is likely to be the first to appear. Somewhat less frequent types are the abdominal, femoral and cervical. Herpes abdominalis follows the distribution of the lower dorsal nerves, appearing on the abdomen and lumbar region. The femoral type in the areas of the first and second lumbar nerves is seen on the buttocks and antero-external aspects of the thigh. Zoster occurring in the area of the third division of the fifth nerve is rather uncommon in children. It may involve the region of the forehead, scalp, nose and eye. The cases affecting the eye are often alarming. In rare instances they may cause ulceration of the cornea, iritis or even panophthalmitis and possibly meningitis and death. The mucous membranes are very rarely affected, though this may occur with involvement of the second division of the fifth nerve. The most serious case of zoster I have seen was one of this type, in which the buccal mucosa and tongue and the cutaneous surface of the cheek were unilaterally affected. The tongue was badly swollen, saliva was dribbling from the mouth, there was high fever with delirium and a generalized petechial rash. The patient made a good recovery, though permanent scarring of the cheeks resulted. Zoster of the extremities below the elbows and knees is rare. Pernet has recorded such a case in an infant with involvement of the arm and hand. Zoster may at times be confined to the ear and external auditory canal, due to involvement of the geniculate ganglion. Ordinarily in this locality an herpetic eruption is simple herpes and affects both ears.

One of the characteristic symptoms of herpes zoster in adults is pain, often of an intense neuralgic type. Even this may be absent or mild in adults. In children below ten years of age it is notably absent, not only before the onset but during the course of the eruption. In general, the younger the child, the less liable it is to complain of pain. The severe neuralgic pain which occasionally follows an attack of zoster in elderly people and persists for months or even years, is unknown, as far as I am aware, in children. Comby, in a series of forty-two juvenile cases, observed rapid disappearance of the disease without any complications and in no case was there pain, either during or after the eruption.

Constitutional symptoms in the average case of zoster are mild or may be absent. Premonitory febrile symptoms are often more marked in children than in adults. There is usually moderate enlargement of neighboring lymphatic glands which may be slightly tender.

The course of zoster is definite and self-limited, the eruption as a rule disappearing in ten days to three weeks. Recurrences are extremely rare. Grindon was able to find reports of only sixty-one cases in which this had taken place. Many cases of supposed recurrence are undoubtedly simple herpes and not herpes zoster.

Variations from the ordinary type occur at times. Thus the disease may be confined to a single patch, or the lesions may be ephemeral in character and last only a few days, when the diagnosis is often difficult. Not infrequently a few vesicles may be scattered over one or both sides of the body in association with a typical eruption of herpes zoster. These so-called "aberrant" vesicles are usually few in number and easily overlooked. At times, however, they are profuse and widespread and simulate the picture of varicella. The relationship of zoster and varicella has occasioned considerable speculation of late, the idea being suggested that both may be caused by the same virus. Numerous cases are on record where one member of a household has suffered from zoster followed shortly by an attack of chickenpox in another and vice versa. The relationship of the two diseases may not be definitely settled until their respective causes are determined. An excellent presentation of the subject is given by MacEwen.

Occasionally the motor nerves adjacent to the sensory ones may be affected by zoster and as a result certain forms of paralysis with muscular atrophy may follow.

Etiology and Pathology.—Herpes zoster is a fairly common disease comprising about one-half per cent of all skin diseases seen in the United States. It may occur at any age but is seen most frequently in children and young adults. It is certainly rare in infants, the youngest case on record being a four-day-old infant reported by Lomer. The comparative frequency of the disease in children and adults appears to vary in different countries. Finkelstein considers it rare in children in Germany, while certain English writers (Crocker, Evans) hold that in their country it is more common in children. In my opinion, it occurs more often in adults in the United States. Males are more frequently affected than females. The ratio in Knowles' series of 286 cases was about two and one-half to one. Zoster is more prevalent in spring, late fall and winter and in cold damp weather.

The exciting causes may be traumatic, toxic or infectious, the last mentioned being probably the most important. Infection is strongly suggested in some cases by a history of contagion, by the presence of aberrant vesicles, constitutional symptoms, glandular enlargement and immunity to subsequent attacks. The disease has been observed in epidemic form and in association with numerous infections, such as sepsis, malaria and syphilis. It may follow various forms of traumatism such as gunshot wounds or extraction of a tooth. It may result from pressure of a tumor, abscess or leukemic infiltration or it may be a toxic manifestation (ingestion of arsenic). Rosenow and Oftedal claim to have proved the streptococcic origin of some cases and to have experimentally produced the disease in animals by injections of cultures of streptococci obtained from tonsils and pyorrhea pockets of persons suffering from zoster.

The pathologic changes, studied particularly by Head and Campbell, consist of inflammation with resulting degeneration in the posterior root ganglia, posterior roots and peripheral nerves. At times the nerves only are affected. The cutaneous lesions show peculiar changes in the epidermis. The vesicles are usually unilocular and contain at the sides and base peculiar cells, exhibiting what Unna calls "ballooning degeneration." These are large, round or oval, swollen epithelial cells showing no prickles, taking acid stains and suggesting the appearance of protozoa.

Diagnosis.—This is easily made as a rule. The groups of vesicles on a reddened base, distributed in a unilateral manner along the course of one or more nerves, form a classic picture. The symptom of pain, which is so characteristic in adults, is not observed in young children. Zoster is most often confused with herpes simplex but the latter is seldom profuse and if so is apt to be bilateral. The diagnosis of zoster occurring as a single patch without any pain would be difficult or impossible.

Treatment.—The chief indication for treatment is protection of the vesicles, avoiding secondary infection and if possible the scarring that may follow their rupture. In older children of ten to fourteen, pain may be a factor. Protection is best afforded by a simple dusting powder or flexible collodion. When it is very important to prevent scarring, especially of the face in girls, a simple dusting powder may be first applied and covered by a generous layer of absorbent cotton held in place by bandages. Greasy applications such as ointments and pastes should not be used as they tend, through maceration, to cause rupture and infection of the lesions. In the few cases of zoster in older children in which pain is a feature, I have found paraffin useful. In a series of seventeen cases, most of whom were adults, I found that paraffin sprayed on the cutaneous lesions and covered by absorbent cotton gave decided relief from pain. The dressings were changed daily, great care being taken not to rupture the vesicles. As a rule only two or three such applications were needed. I might add that the action of collodion is not equal to paraffin in relieving pain as it does not exclude air from the parts where it is applied. Collodion, however, serves as a convenient protective remedy. I can see no advantage in combining ichthyol with collodion as is infrequently done. In the average case no general treatment is required, though well-marked febrile symptoms may occasionally be present and should receive proper attention.

Prognosis.—This is good though some scarring may result. In children the disease is not followed by neuralgic pain and recurrences are extremely rare.

POMPHOLYX

The disease was first described as dysidrosis by Tilbury Fox and later as cheiropompholyx by Hutchinson.

Symptoms.—It is seen chiefly on the palms, soles and lateral surface of the fingers and somewhat less often on the backs of the hands. It is usually symmetrical. It appears as a crop of discrete vesicles of varying size, generally described as deep-seated lesions embedded in the skin, which resemble boiled sago grains. The vesicles are clear at first, later becoming turbid. At times they coalesce and form bullæ. They cause a mild amount of itching or burning, show little tendency to spontaneous rupture or secondary infection and after some desquamation disappear without trace in one to two weeks. From constantly recurring crops the attack may be prolonged for weeks or a few months. There is a tendency to later recurrence. Constitutional symptoms are absent. There may or may not be an associated hyperhidrosis.

Etiology and Pathology.—The disease is seen mainly in adults and is rare in children. It is more prevalent in warm weather and in warm climates. It is said to affect those of a "nervous temperament."

There has been a great deal of difference of opinion regarding the nature of this affection and the question is not yet settled. It was originally thought to be a disturbance of the sweat function, the vesicles being in apparent anatomical relation with the sweat ducts. Some later investigators, however, found no such relationship. More recently it was observed that in many cases the vesicles contained fungus (epidermophyton, trichophyton). According to Kaufmann-Wolf, one third of the cases classified as dysidrosis are fungous infections. This was true of 80 per cent of the cases examined by Darier. Neither Jadassohn nor Darier consider pompholyx to be an autonomous disease but rather a dermatitis due to an external irritant (chemical, medicinal) or to infection by fungi. On the other hand, Greenbaum, after thorough laboratory investigations, concluded that pompholyx was a clinical entity of unknown causation, an opinion that is still shared by numerous authorities.

Diagnosis.—The most characteristic features of what is called pompholyx consist of crops of rather deep-seated vesicles, which do not itch severely or tend to rupture spontaneously, and are situated more or less symmetrically on the parts of the hands and feet above mentioned. If mycelium is found on microscopic examination, the eruption is simply a fungous infection of the so-called dysidrotic type. If this can be excluded as well as external sources of irritation, it is proper to label the affection pompholyx. In eczema the vesicles are more itchy and rupture early; the eruption is also less symmetrical and its course is less definite than in pompholyx.

Treatment.—When fungus is present, the treatment is that of ringworm. Antipruritic lotions are of value and if there is swelling and rupture of vesicles, wet dressings of boric acid may be applied for a day or two. If secondary infection is present a weak (3 per cent) ammoniated mercury ointment may be used. I have found fractional doses of Roentgen rays at weekly intervals of great value.

Prognosis.—This is good for an individual attack, though the disease may recur.

HYDROA VACCINIFORME

Hydroa vacciniforme is a rare affection usually beginning in childhood. It was first described by Bazin, in 1861. The word hydroa was formerly used for a number of diseases, but is now limited to the one under discussion.

Symptoms.—The disease appears first in early childhood, on the uncovered parts of the body, usually following exposure to the sun. The onset of the eruption is sudden, accompanied at times by malaise or other slight constitutional disturbance. It is situated symmetrically on the exposed parts including the nose, cheeks, ears and back of the hands and forearms. The cornea has also been known to be involved (Hyde). The first lesions appear as reddish macules on which vesicles soon form and become well developed in twenty-four hours. Some may coalesce and form bullæ. Their contents become turbid, dry in a few days and form crusts, which fall off a week or ten days later. In some of the lesions there is a central depression surrounded by a vesicular ring and outside of this a reddish areola simulating vaccinia. It is from such lesions that the disease receives its name. After the disappearance of the crusts, shallow atrophic scars are left, which are red at first but eventually become white. After many such attacks there is often quite an appreciable amount of scarring. In rare cases there may be severe mutilation.

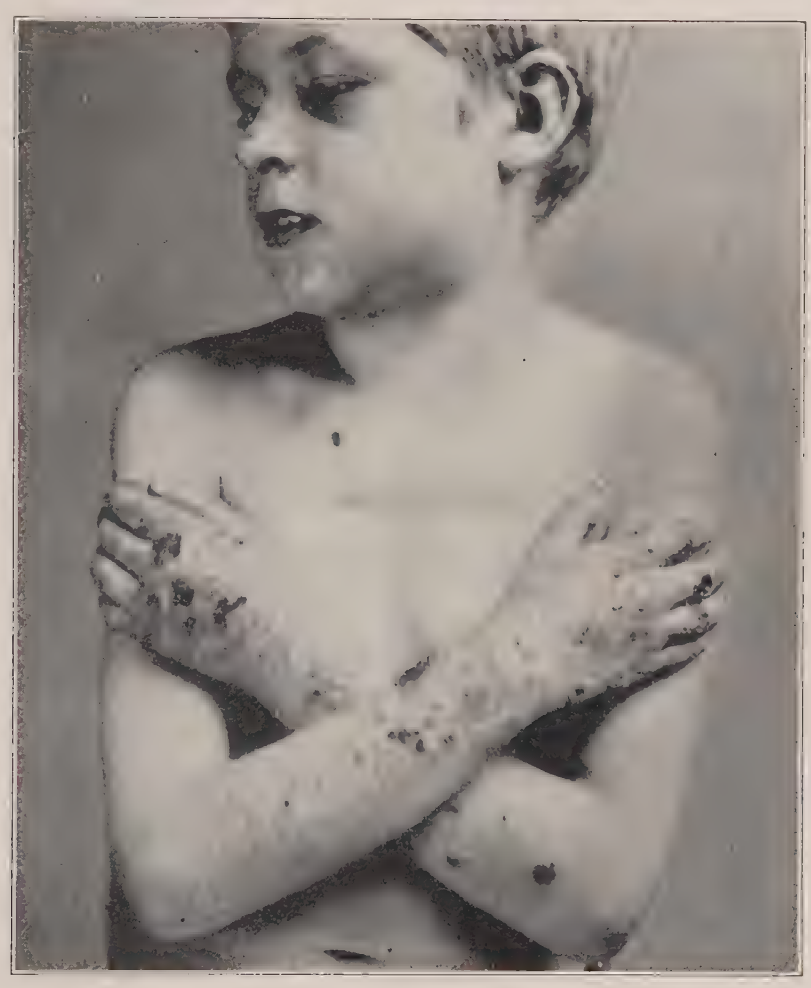

Fig. 37.—Hydroa Vacciniforme Showing Crusts and Scars on Exposed Parts.

The subjective symptoms consist of burning, soreness or a feeling of tension, itching being practically absent. Constitutional symptoms, if present, are mild.

The course of a single attack may be short and last only two or three weeks. There is frequently, however, a succession of crops of new lesions which prolong the process during the summer months. The disease is characterized by constant recurrences and persists as a rule for a few years after puberty, at times for three decades, when it gradually ceases.

Etiology and Pathology.—The disease is seen more often in boys than in girls and is occasionally familial. While it begins in early childhood as a rule, it may not appear until adult life in exceptional cases. The earlier the appearance of the disease the more severe are its manifestations. According to Finkelstein, hydroa is observed only in white persons, with the exception of one case which occurred in the child of a mulatto. In Hazen's and in my own statistics of skin diseases in the negro, there were no cases of this disease. The eruption usually follows exposure to sun (in 80 per cent of cases according to Senear and Fink)

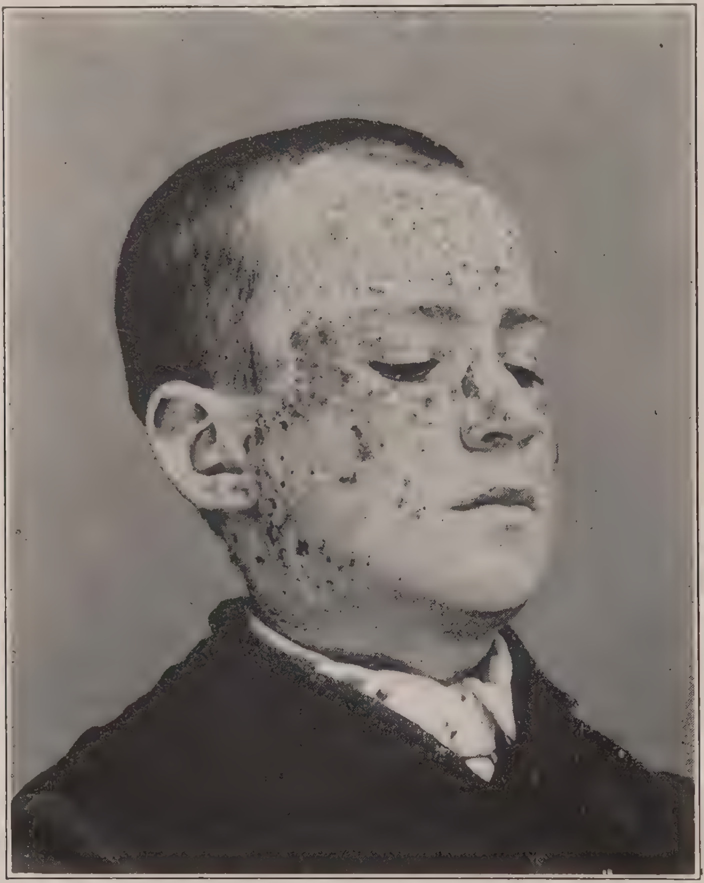

Fig. 38.—Hydroa Vacciniforme.

though it may also appear after exposure to heat or to cold wind. In a certain number of cases hematoporphyrin is found in the urine. In a classic case of mine of four years' duration (see Fig. 37) it was not found on examination by the chemist of Bellevue Hospital. Hematoporphyrin is an iron-free derivative of hemoglobin which is known to have the power of sensitizing tissues to ultraviolet rays. The idea is naturally suggested that it plays a part in causing the cutaneous manifestations after exposure to light. When the actinic rays were prevented from reaching the skin by interposing red glass, Ehrman found that no reaction occurred.

Diagnosis.—The clinical picture presented by hydroa is distinctive. It includes a vesicular eruption, symmetrically situated on exposed parts, occurring chiefly in children, in recurrent attacks, usually after exposure to sunlight and always leaving atrophic scars. Dermatitis herpetiformis and erythema multiforme would be most apt to cause confusion. The former is not strictly confined to uncovered areas, is frequently more extensive and shows evidence of itching which is absent in hydroa. Erythema multiforme is never followed by scarring which is so characteristic of hydroa. Lupus erythematosus is rarely seen in children and is not vesicular. Impetigo is not symmetrical and does not produce scars.

Treatment.—There is no satisfactory method of preventing the disease, which eventually disappears. Attempts may be made to lessen the severity of attacks or prevent them by avoiding exposure to sunlight, heat and cold wind. As a protection against actinic rays the patient may wear orange or red colored veils or use ointments containing quinin or esculin (derived from horse-chestnut juice) recommended by Senear and Fink. The treatment of individual attacks is symptomatic. At the outset wet dressings of boric acid are useful, followed by soothing lotions, and later simple boric acid or other bland ointment, to aid in removing crusts. Some authors think that puncture of vesicles or bullæ, followed by application of an antiseptic powder, such as aristol, tends to lessen scarring.

Prognosis.—The disease is persistent and recurs for years and causes more or less scarring, which may be severe.

Hydroa Puerorum

This is an affection described by Unna which Darier thinks is a form of dermatitis herpetiformis. According to the studies of Haase and Hirschler, however, it is a separate entity. It is seen only in boys and occurs independently of season or exposure to sunlight. The lesions are vesicular or bullous, occur on any part of the body and leave no scars.

Each attack lasts about two weeks. The disease begins in infancy and ceases at puberty.

PEMPHIGUS

Pemphigus, from the Greek word meaning a blister, was formerly used to denote all skin diseases associated with bullæ. One writer even described ninety-seven such types. Bullæ may occur in a great many affections without constituting an essential feature. They may be caused by traumatism, burns, numerous plant and chemical irritants or the ingestion of certain drugs. They may appear in erythema multiforme, urticaria, erysipelas, anesthetic leprosy, or congenital syphilis. They may be caused by pyogenic cocci as in the so-called pemphigus neonatorum. There are only two diseases, however, in which the essential lesions are bullæ: epidermolysis bullosa and pemphigus.

Four types of pemphigus are usually recognized, including pemphigus acutus, vulgaris, foliaceous and vegetans. The first mentioned appears to be without doubt a septic infection and a different type of disease from the other three forms. When the word pemphigus alone is used, it refers, as a rule, to the chronic vulgaris type. The foliaceous and vegetating forms are very rare, particularly the latter, and are practically never seen in children and will therefore not be considered in this description. As to whether the vulgaris, foliaceous and vegetating types are distinct entities or varieties of the same disease is a matter of opinion. Their true relationship will only be known when the cause of pemphigus has been definitely established.

Pemphigus Vulgaris

Pemphigus vulgaris is the most common type of the disease as its name would imply, although even this form is rare. It is also known as chronic pemphigus. The onset may be sudden or rather insidious and may or may not be accompanied by constitutional symptoms of a mild character. The essential lesions, the bullæ, appear suddenly without apparent cause on normal skin, as round or oval, thin-walled lesions varying in size from a pea to an egg or more. They are tense at the outset with clear contents, later becoming turbid and rarely somewhat hemorrhagic. They develop in a few hours (twenty-four at the latest) and do not tend to further enlargement, though several may coalesce. There is no tendency to annular or "iris" configuration. The bullæ may be few in number or numerous. In the advanced stages they are profuse. The eruption is generalized and bilateral though not symmetrical. Two cases are on record by Pick and Neuman (quoted by Pusey) in which the lesions were unilateral. There may be a suggestion of grouping, though never anything to compare with that seen in dermatitis herpetiformis. The bullæ may appear on any part of the body but are seen chiefly on the trunk and extremities, especially the flexor surfaces. They also occur on the mucous membrane of the mouth, pharynx, larynx and vagina and may involve the conjunctiva. On mucous surfaces bullæ are not often seen, due to early rupture from maceration. In their place, abraded red areas, covered more or less by shreds of tissue, are observed. The lesions of the mucous membranes may appear before those of the skin and usually indicate severity of the process. The condition known as essential shrinkage of the conjunctiva is thought by some to be due to pemphigus.

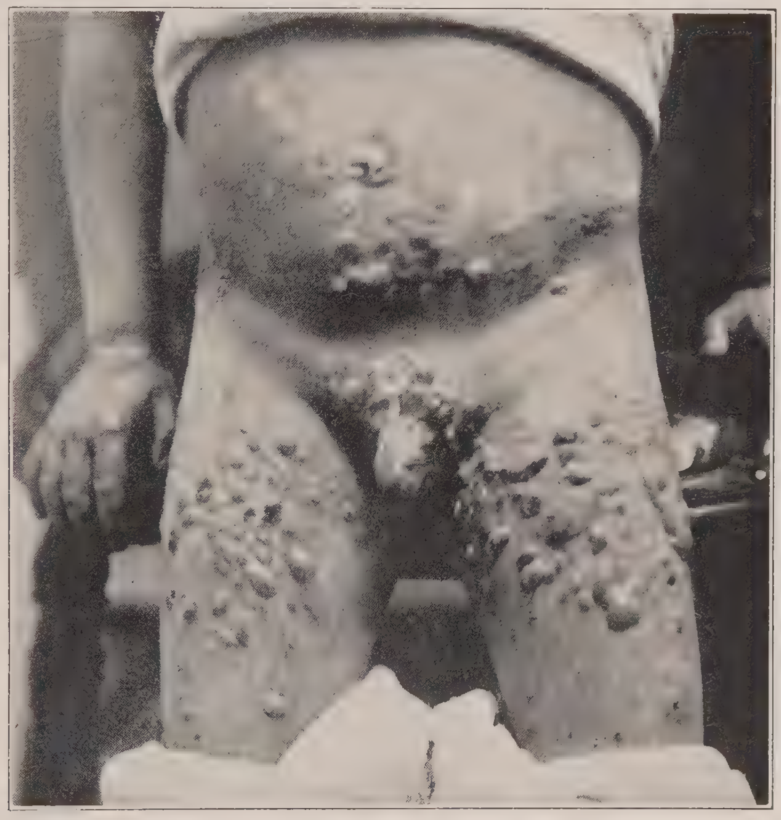

Fig. 39.—Pemphigus Vulgaris.

The evolution of an individual bulla lasts a week or two. The fluid may be absorbed and after exfoliation a red spot may be left or there may be a temporary pigmentation when a bulla has repeatedly formed in the same spot. The bullæ may rupture, dry and form crusts which cover raw, reddish or at times ulcerating or even gangrenous surfaces. In extensive cases there are large, abraded, tender, discharging areas, emitting a disagreeable odor and causing intense distress. The bullæ leave no scars after their disappearance but are followed at times by epidermic cysts (like those of epidermolysis bullosa) or by thickening of the palms and soles. The latter occurs in cases where no arsenic has been administered.

The subjective symptoms vary greatly in degree. They consist of burning and feeling of tension, and at times some itching. The cases in which intense itching is reported to have been present, always suggest the possibility of the disease having been dermatitis herpetiformis rather than pemphigus. In general, the lesions of the latter disease do not itch. Constitutional symptoms may be entirely absent in the mild cases, and are relatively slight considering the gravity of the disease. In the severe cases there are febrile symptoms and a gradual loss of flesh and strength. This, in my opinion, is an important diagnostic sign of a severe grade of the disease and is in striking contrast to dermatitis herpetiformis in which the general health is often surprisingly good. In the extensive and grave types of pemphigus there is severe prostration and death often follows from exhaustion or intercurrent disease.

The phenomenon known as Nikolsky's sign is invariably present at some time in the course of the severe cases. By firm pressure on the skin with the finger, the horny layer of the epidermis can be made to slide off from the mucous layer beneath or it may give rise to a bulla. This sign was originally thought by Nikolsky to be diagnostic of the foliaceous type, but was later found to be present in other forms of pemphigus. In fact, it is not pathognomonic of pemphigus in general, as it may also be present in epidermolysis bullosa and severe forms of dermatitis herpetiformis. Eosinophilia may be present, though it is neither constant nor diagnostic when present.

Etiology.—Pemphigus vulgaris is a rare disease particularly in this country. The relative frequency in children and adults is difficult to ascertain as authorities differ on the subject. There can be no doubt but that the severe and usually fatal types are much more frequent in adults. Adamson says that "pemphigus vulgaris occurs in children perhaps rather more frequently than in adults" while MacLeod states that "it is more common in adult life than in childhood." In my opinion the disease is rare in children in this country. It is neither hereditary nor contagious. It occurs somewhat more frequently in the Jewish race. The cause is unknown.

Diagnosis.—The characteristic symptoms are the spontaneous appearance of bullæ either singly or in crops on normal or practically normal skin, with comparative mildness or absence of constitutional symptoms and absence, as a rule, of itching. In erythema multiforme the bullæ appear on an erythematous base, on sites of predilection, and tend to show a circinate or other configuration, and run a self-limited course. The bullous form of impetigo contagiosa, occurring in infants or young children, is often wrongly called pemphigus. In fact, there is a general tendency to make a hasty diagnosis of pemphigus in all cases of bullous eruptions. In impetigo there may be a history of an epidemic or infection of other members of the family, the bullæ are auto-inoculable, and other lesions of impetigo may be present. Epidermolysis bullosa is a congenital affection in which lesions are caused by traumatism. In congenital syphilis, bullæ may be present and are seen most often on the palms and soles, which are not favorite locations for pemphigus. The differential diagnosis of dermatitis herpetiformis is considered in the description of that disease.

Treatment.—The treatment of pemphigus vulgaris includes both general and local measures, but the results are unsatisfactory and discouraging. Many remedies have been tried but none have been consistently favorable in their results. Certainly no one would say that there is any specific remedy for pemphigus. Arsenic was originally considered so by Hutchinson, but has not fulfilled his expectations, although Crocker considered it specific in children. Corlett said "in observing the treatment in various hospitals as well as the cases in my own service I have never observed the slightest benefit from arsenic." Many other drugs, including belladonna, quinin, strychnin, salicin, arsphenamin and mercurochrome, have been used without obtaining uniformly good results. The same may be said of vaccines and autoserum therapy. Sporadic cures have been reported from a salt-free diet. The method of treatment suggested by R. H. and W. D. Davis has had an extensive trial in this country, and has in general been disappointing. Encouraging results were shown in a report on this method by Wende, but the time was too short to prove its permanent value. It consists in intramuscular injections three times a week of 1.5 c.c. of coagulen, and intravenous injections of one grain of cacodylate of iron given on the same or alternate days. The coagulen is supposed to increase the coagulability of the blood, while the cacodylate is used for its tonic effect. Quinin has been given by mouth and has been strongly recommended by Leszezynski for intravenous use, giving one gram or even more (for an adult) every other day in 250 c.c. of salt solution. A drug which should not be used is potassium iodid, which may itself cause a bullous eruption. The general treatment of the patient, including nutritious food, proper hygiene and tonics, is most important.

The local treatment depends on the severity of the process. Bullæ should be opened aseptically, and wet dressings of boric acid or soothing lotions applied. When the abraded surface is extensive, bland ointments such as boric acid, oils, such as equal parts of olive oil (or sweet almond oil) and lime water, or calamine liniment may be applied. In severe cases the patient should rest on an air or water mattress, or continuous baths for weeks at a time may be employed. Bathing is in general helpful, especially baths containing starch, bran or oatmeal. Expert and conscientious nursing is of the greatest help in severe cases. At times the method suggested by C. J. White of keeping the patient constantly covered by a dry dusting powder is of value. White recommends borated talcum, and Engman cornstarch for this purpose.

Prognosis.—This is usually grave, the disease lasting for months or even years and being marked by periods of exacerbation and remission. The course is milder in children than in adults, and the chances of recovery are much better.

DERMATITIS HERPETIFORMIS

Dermatitis herpetiformis is the name given by Duhring to a chronic, recurring, pruritic disease of polymorphous type. While its different manifestations had been previously described under varying titles, Duhring grouped them together as phases of a single disease. As there is no pathognomonic sign or laboratory test of this affection, its recognition even at present is by no means always easy. There are border line cases by which it is related to erythema multiforme or to pemphigus. Further difficulties are presented by its somewhat atypical appearance in children. Information regarding the special features of the disease in children is largely derived from the statistical work of Knowles, relating to fifty-seven cases of the disease seen in children, reported by forty-one different observers. This included fifteen cases reported by Bowen.

Symptoms.—The four principal symptoms of dermatitis herpetiformis are polymorphism, grouping, itching and recurrence. The last mentioned is the most constant and diagnostic. In fact, without a history of one or more previous attacks, the diagnosis is often speculative. The eruption may appear suddenly or gradually and with or without constitutional symptoms. Polymorphism is shown by the appearance of erythematous, papular, vesicular, bullous or pustular lesions. In a particular attack a certain type usually predominates, but this may change in subsequent attacks. The erythematous type presents finger-nail to palm-sized, slightly infiltrated and itchy patches. Some of these may be circinate and closely resemble erythema multiforme. The vesicular type is considered the most characteristic, though it is not as common as the mixed variety. The lesions are variable in size, and may coalesce and form bullæ. They are tense and clear at first, later becoming turbid. Both vesicles and bullæ show little tendency to spontaneous rupture. When filled with fluid they cause intense itching, which is lessened after their contents are evacuated. Not infrequently there are bullæ surrounded by satellite vesicles. The vesicobullous type is the one most often seen in children.

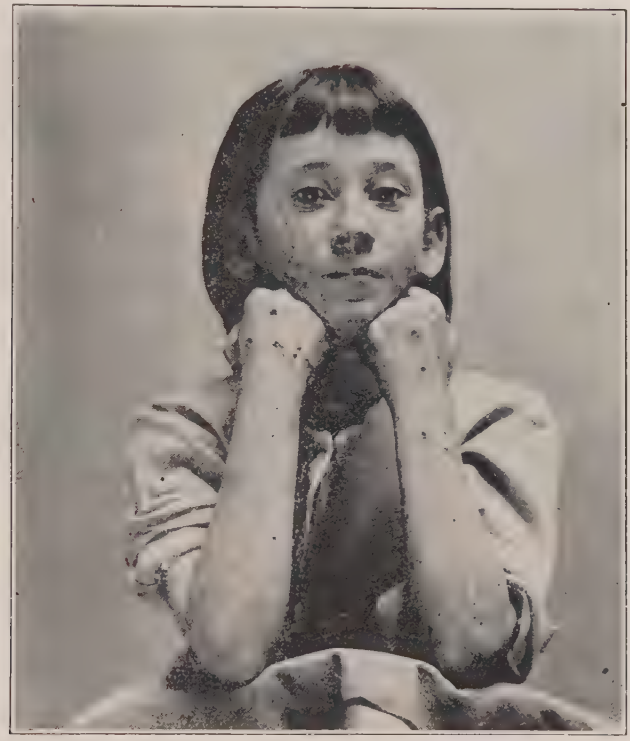

Fig. 40.—Dermatitis Herpetiformis of Papular Type.

The distribution is fairly symmetrical. There may be a few scattered patches or a profuse generalized eruption. The disease in children is seen chiefly on the face and extremities, while the palms, soles and mucous membranes are rarely affected. Grouping of lesions, one of the cardinal symptoms in adults, is much less marked in children, being present in only one-fourth of the cases.

Itching is usually not as characteristic or intense as in adults. In

Knowles' statistics it was present in a marked degree in about two-fifths of the cases. Instead of itching there may be a feeling of burning or tension or actual pain. Bowen states that pain and itching are frequent, but not necessary accompaniments of the disease. As the scratching is less marked in children, it is natural that its sequelæ, such as pigmentation, thickened skin and scarring from secondary infection, should be less common in children. Pigmentation, according to Knowles, was present in less than one-fourth of the cases. The general health is good, especially in the intervals between the attacks.

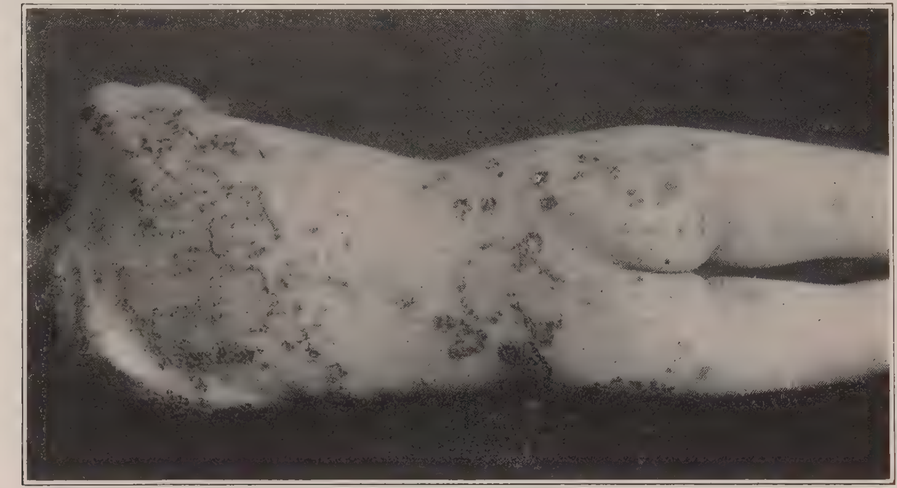

Fig. 41.—Dermatitis Herpetiformis.

The course is characterized by a succession of recurrences. A single attack may last a few weeks or months, while repeated attacks may prolong the disease for years. An apparent transition from dermatitis herpetiformis to pemphigus has occasionally been observed.

Etiology and Pathology.—Dermatitis herpetiformis occurs in infancy and childhood but is more common in adults. It is more common in males, and occurs once in every five hundred cases of skin diseases in the United States. The disease was observed by Malcolm Morris (quoted by Knowles) in an infant thirteen weeks old. It has followed nervous shock, vaccination and various infections and has been seen in association with sepsis. It is not contagious. It is regarded by many as a toxemia of unknown cause, acting on the skin through the nervous system, which is about equivalent to saying that we are in the dark regarding the causation.

Eosinophilia is often present in the blood, in the contents of the vesicles and bullæ, and in the infiltrate in the cutis (Leredde and Perrin). Its significance is not well understood, being found in some other bullous diseases, such as the vegetating and foliaceous types of pemphigus. Furthermore, it is not constantly present in dermatitis herpetiformis, Engman and Davis finding it absent in half of their series of twenty-seven cases. Gardiner, however, considers eosinophilia an important diagnostic aid in this disease, when occurring in childhood. Histologically, the vesicular and bullous lesions are shown to have the entire epidermis as their covering, which accounts for the fact that they do not rupture easily.

Diagnosis.—The diagnosis of dermatitis herpetiformis may be easy or most difficult, especially the differentiation from erythema multiforme and pemphigus. In erythema multiforme the subjective symptoms are less marked, and in spite of its name, the lesions are less multiform than those of dermatitis herpetiformis. The history of previous attacks is also different, those of erythema multiforme being much more definite and self-limited. Prurigo differs from dermatitis herpetiformis in being more of a continuous process, and showing adenopathy and more marked thickening of the skin. Eczema lacks the tendency to grouping; vesicles if present are superficial, closely set and easily ruptured and the disease is less apt to be generalized. The eruption of pemphigus consists of bullæ, often of large size, which are asymmetrically scattered over the body, which cause no itching and frequently involve the mucous membranes. A progressive loss of flesh and strength is characteristic. In dermatitis herpetiformis the bullæ are smaller and often associated with other lesions. They are grouped in a more or less symmetrical manner, cause itching and less frequently involve the mucous membranes. The general health is usually excellent and eosinophilia is more marked than in pemphigus,

Treatment.—Both general and local treatment are required. Although the general health appears good as a rule, much can often be done to improve the patient's condition by rest, fresh air, proper diet and tonics. A fruit and vegetable diet with copious drinking of water, alkaline diuretics and avoidance of constipation are indicated. There is no specific remedy. Arsenic has probably been of more value than any other drug, though it does not prevent recurrences and in any case its administration must be pushed to the physiological limit to obtain results. Fowler's solution is the preparation which has been most used. It should not be forgotten that long-continued use of arsenic may be followed by pigmentation and keratosis of a persistent type. Thyroid medication has been known to help, and adrenalin, quinin and many other remedies have been advocated. Some cases have undoubtedly been aided by autoserum injections including some of my own (in adults). This method, according to Ormsby, has been "of distinct service in many cases."

Local treatment includes antipruritic powders, lotions, salves and baths. A remedy which is efficacious at one time is unfortunately not so at another. Thus, the calamine lotion, oil of cade (10 per cent in olive oil or zinc ointment) liquor carbonic detergens in varying strength, and starch or sulphur baths may be tried. Duhring recommends sulphur, and in my experience this is the most satisfactory local remedy. It is used in ointment of 3 to 6 per cent strength and may be combined with sulphur baths. Some of my patients have used sulphur and naphthol soap with satisfaction. Exposure to sunlight and to quartz lamps is at times of temporary value. In my experience, the Roentgen rays have been very disappointing. In ten cases treated by MacKee, there was temporary relief of itching in most cases but "no permanent benefit."

Prognosis.—This is nearly always good, though the disease is capricious and persistent. In rare instances, pemphigus has supervened.

Summary of Special Features in Childhood.—The disease affects infants and children, but less commonly than adults. It has been observed in an infant of thirteen months. The most common type of eruption is the vesicobullous. Itching is less common, and grouping, multiformity and pigmentation are much less common than in adults.

BIBLIOGRAPHY

Herpes Simplex

Adamson, H. G. Recurrent Herpes of the Buttocks. Brit. J. Dermat., London, 1911, 23: 322.

Greenbaum, S. S., and Harkins, M. J. Experimental Studies on Immunity in Herpes Simplex. Arch. Dermat. & Syph., Chicago, 1925, 11: 789.

Rolleston, J. D. Herpes Facialis in Diphtheria. Brit. J. Dermat., London, 1907, 19: 309.

Seaton, E. Clinical Notes on a Febrile Epidemic Illness at a School. Tr. Clin. Soc., London, 1886, 19: 26.

Wells, E. F. Pneumonic Fever: Its Symptomatology. J. Am. M. Ass., Chicago, 1894, 22: 767.

Herpes Zoster

Comby, J. Zona doublé croise et zona doublé symétrique. Arch. de méd. d. enf., Paris, 1918, 21: 252.

Evans, W. The Age Incidence of Herpes Zoster. Brit. J. Dermat., London, 1905, 17: 199.

Fox, C. Case report. Brit. J. Dermat., London, 1898, 10: 252.

Fox, H. The Relief of Pain in Herpes Zoster by Paraffine. J. Am. M. Ass., Chicago, 1922, 79: 1797.

Head, H., and Campbell, A. W. The Pathology of Herpes Zoster and Its Bearing on Sensory Localization. Brain, London, 1900, 23: 353.

Knowles, F. C. Herpes Zoster. Report of 286 cases with Review of the Unusual Features of the diseases. Penn. M. J., 1912, 15: 615.

Lomer. Herpes Zoster bei einem 4 Tage alten Kind. Centralbl. f. Gynekol., Gynäk., Leipzig, 1889, 13: 778.

McEwan, E. L. The Association of Herpes Zoster and Varicella. Arch. Dermat. & Syph., Chicago, 1920, 2: 205.

Rosenow, E. C., and Oftedal, S. The Etiology and Experimental Production of Herpes Zoster. J. Am. M. Ass., Chicago, 1915, 64: 1968.

Pompholyx

Greenbaum, S. S. Inoculation, Auto-Inoculation and Complement Fixation Test in Pompholyx. Arch. Dermat. & Syph., Chicago, 1922, 7: 757.

Hydroa Vacciniforme

Senear, F. E., and Fink, H. W. Hydroa Vacciniforme seu Æstivale. Arch. Dermat. & Syph., Chicago, 1923, 7: 145.

Hydroa Puerorum

Haase, M., and Hirschler, R. Hydroa Puerorum (Unna). J. Cutan. Dis., New York, 1908, 26: 199.

Pemphigus

Corlett, W. T. Pemphigus: Its Clinical Varieties and Treatment with a report of Unusual Cases. Am. J. M. Sc., Philadelphia, 1894, 107: 413.

Dermatitis Herpetiformis

Bowen, J. T. Dermatitis Herpetiformis in Children. J. Cutan. Dis., New York, 1905, 23: 381.

Engman, M. F., and Davis, R. H. Some Observations upon the Cellular Elements of the Blood in Three Hundred Cases of Various Skin Diseases. J. Cutan. Dis., New York, 1915, 33: 73.

Fox, H. Human Serum and Blood in the Treatment of Psoriasis and Other Skin Diseases. J. Cutan. Dis., New York, 1915, 33: 616.

Gardiner, F. Dermatitis Herpetiformis in Children. Brit. J. Dermat., London, 1909, 21: 237.

Knowles, F. C. Dermatitis Herpetiformis in Childhood. J. Cutan. Dis., New York, 1907, 25: 247.

Leredde and Perrin. Anatomie pathologique de la dermatose de Duhring. Ann. de dermat. et syph., Paris, 1895, p. 282.

Oliver, E. A., and Eldridge, C. J. Dermatitis Herpetiformis in Children. J. Am. M. Ass., Chicago, 1922, 78: 945.

CHAPTER VII

ECZEMA

GENERAL CONSIDERATIONS

Eczema is the most common disease of the skin in infants and children for which medical aid is sought. It is polymorphous in its manifestations, though usually easy to recognize. The difficult problem in eczema is the causation which is often complex and may be difficult or impossible to ascertain. The conception of the term eczema (from the Greek word, to boil over) has undergone many changes in the past and is still changing. The Vienna school under the leadership of Hebra considered eczema to be a process due entirely to local irritants, while the French school looked upon it as a constitutional affection. As our knowledge of skin diseases has been progressing, certain affections classed as eczema have been gradually removed from this group and given their place in medicine. One of the latest changes of this kind is the recognition that certain vesicular and scaly eruptions of the hands and feet are fungous infections and not eczema. The best conception of eczema, I think, is that it is a rather common cutaneous reaction due to one or more irritants of a physical or chemical nature which may be of either external or internal origin or both. I do not think that we would be justified in giving up the time-honored name of eczema as it is so firmly rooted in medical literature. Nor do I think that any advantage is gained by using

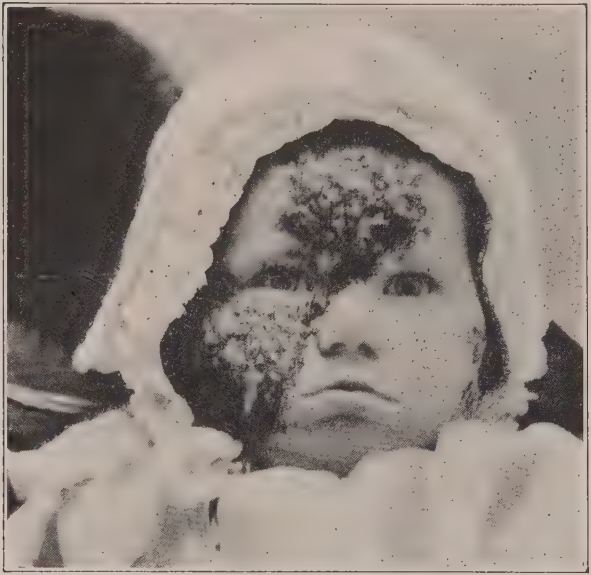

FIG. 42.—ECZEMA OF VESICULAR AND CRUSTED TYPE.

the word dermatitis in place of eczema. It is perfectly true that eczema is clinically and pathologically a simple dermatitis by which we mean an inflammation of the skin which may be caused by ordinary external irritants. A custom has been followed in this country of using the term dermatitis venenata for eruptions of the eczematous type due to external irritants, such as those encountered in innumerable occupations and trades. This is convenient, though irrational, as the disease is of the same type whether the cause is external or internal.

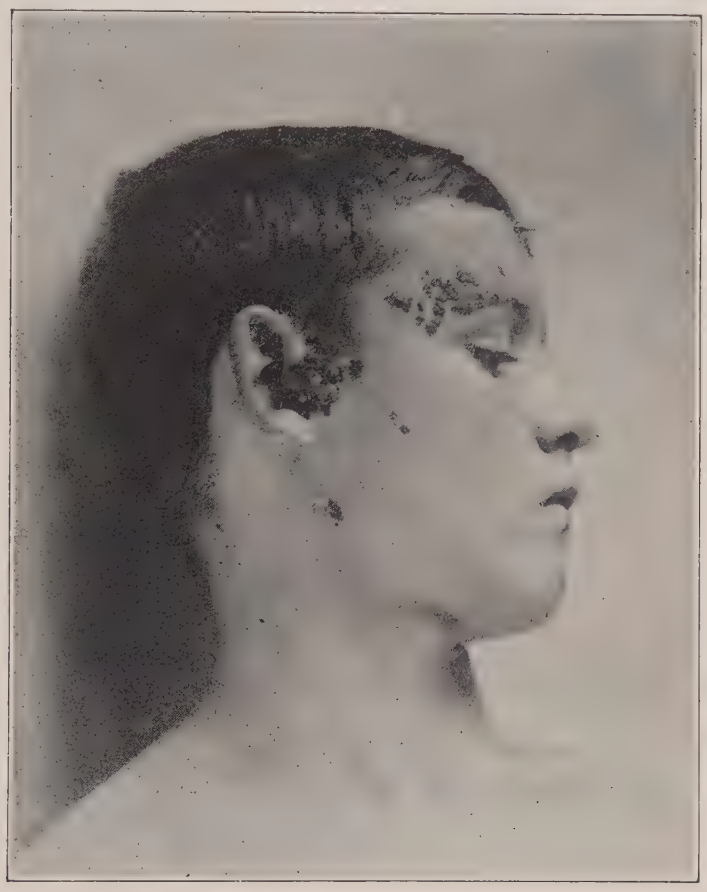

Fig. 43.—Eczema of Vesicular and Oozing Type with Numerous Crusts.

Symptoms.—Eczema is an inflammatory disease analogous to catarrhal inflammation of the mucous membranes. It is a moist process, though this may not be evident at all times. The tendency at least to moisture is always present. There is no single primary lesion of the skin which is pathognomonic, such as the vesicle of herpes, the papule of lichen planus or the nodule of lupus vulgaris. Eczema presents a number of primary lesions which may succeed one another or be present simultaneously. The vesicle is the commonest lesion and is the most characteristic. The essential changes consist of redness, moisture, infiltration of the skin, scaling, crusting, subjective symptoms (usually itching) and the tendency to form patches with ill-defined borders. Many types and stages of the disease are seen and, according to the predominating lesions present, the eruption is spoken of as erythematous, vesicular, papular, squamous, etc. Eczema may be acute, subacute or chronic. In many of the chronic cases the process may consist of repeated exacerbations and constitute an acute process, even though its duration is long. The disease may be localized or generalized and at times universal, and it may be symmetrical or irregular in distribution. While any part of the cutaneous surface may be involved, the face and flexor surfaces in general are the favorite sites.

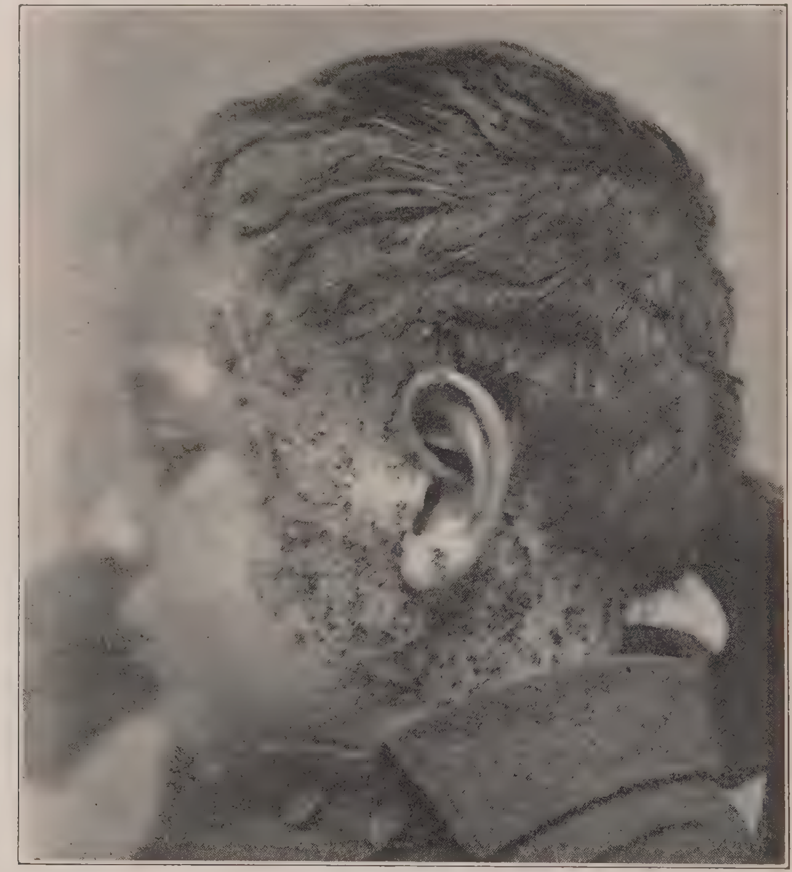

Fig. 44.—Eczema.

The onset of an attack or of a subsequent acute exacerbation may

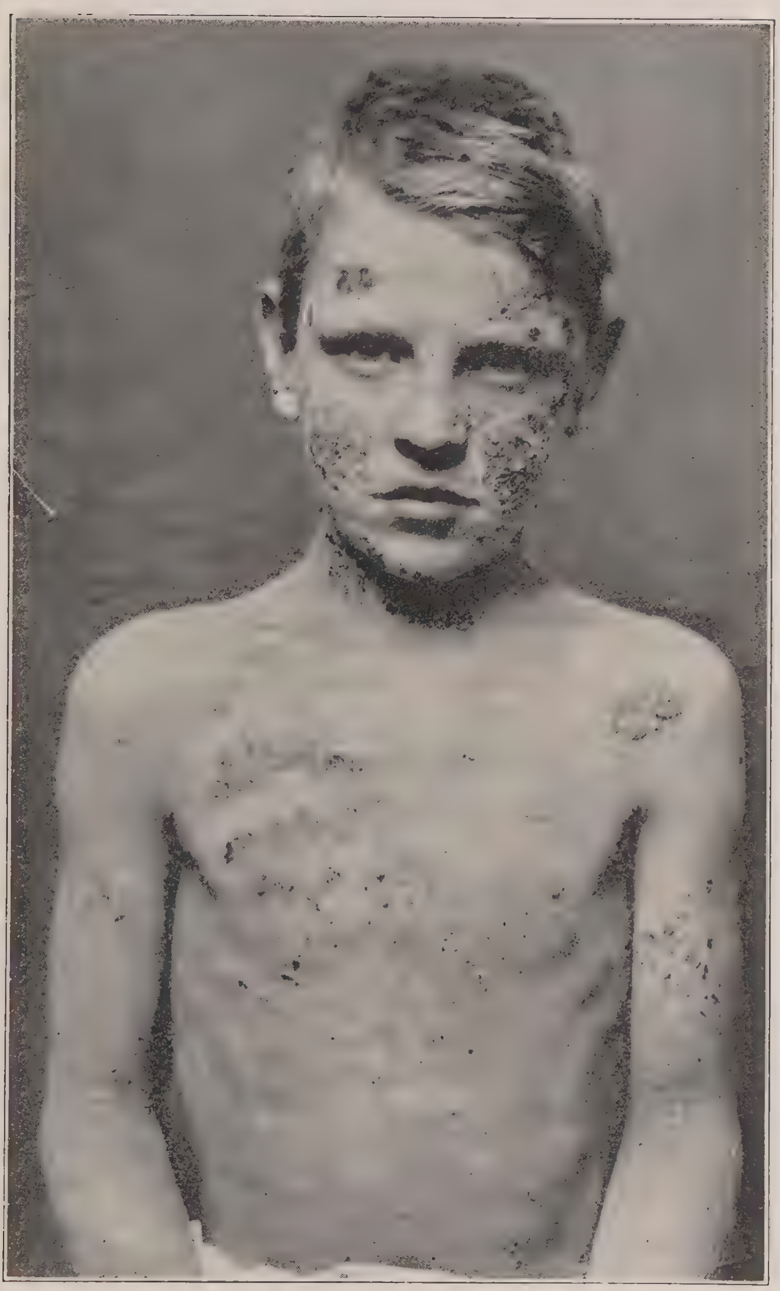

FIG. 45.—ECZEMA OF VESICULAR AND OOZING TYPE WITH NUMEROUS CRUSTS.

be accompanied by constitutional symptoms, usually of a mild type. These include malaise, loss of appetite, sleeplessness, digestive disturbances and a slight rise in temperature. They are more common in infants and young children than in adults. The first change in the skin is a bright redness with ill-defined borders, often associated with some swelling and tension of the affected parts. In some cases in older children this type may be seen in the flexures and remain dry, red and somewhat thickened (erythematous eczema), though, as in all cases of the disease, the process eventually goes through the stage of scaling.

The stage of vesiculation follows the initial redness in a few hours in nearly all cases. This consists of numerous closely aggregated pin point to pinhead vesicles with transparent, clear fluid. The vesicles are superficial and rupture spontaneously or from scratching, their contents having the well-known property of stiffening linen. This serous fluid continues to ooze from the extremely edematous epidermis. If the oozing is moderate and exposed to the air, it dries and forms yellowish or honey-colored crusts. When, however, the edema is extreme, the entire epidermis of the affected region becomes raw and denuded, the fluid being so profuse that crusts cannot form. The vesicular type of eczema always causes itching which is usually paroxysmal and worse at night. The exudative stage may last for weeks or months unless treated, but finally subsides.

The papular type of eczema is uncommon in young patients and in its pure type is seen only at times in older children. The papules are small, round or acuminate and are more often vesicopapules. This type is the most pruritic of all. It might be added that the papular type of skin disease in general causes the greatest amount of itching, next in order of severity being the vesicular type.

Pustular or impetiginous eczema is due to secondary infection with pyogenic cocci and is a common feature of infantile eczema. The crusts formed by such lesions are thicker and of a darker color (brownish or greenish) and frequently have an admixture of blood. The itching is not severe in this type of the disease.

The terminal stage in any case of eczema is that of scaling which may be either furfuraceous or lamellar in type. When this stage is reached, the acuteness of the process has subsided, the bright red color has changed to a dull red, the edema has lessened, the crusts have fallen and the itching has lessened or disappeared. In the course of a dry, scaling eczema, fissures are apt to form especially at the mucocutaneous junctions and on the palms and soles. When this stage has lasted a long time the skin becomes more or less thickened with exaggeration of the natural creases and the process is known as lichenified eczema. This may be seen in older children.

Subjective symptoms are always present but vary greatly in severity. At the outset there may be a sensation of burning or prickling, but itching soon appears and becomes a prominent feature. It may be severe enough to interfere with sleep and have an unfavorable effect on the general health. The contact of cool air with an eruption of the covered parts may be followed by severe itching.

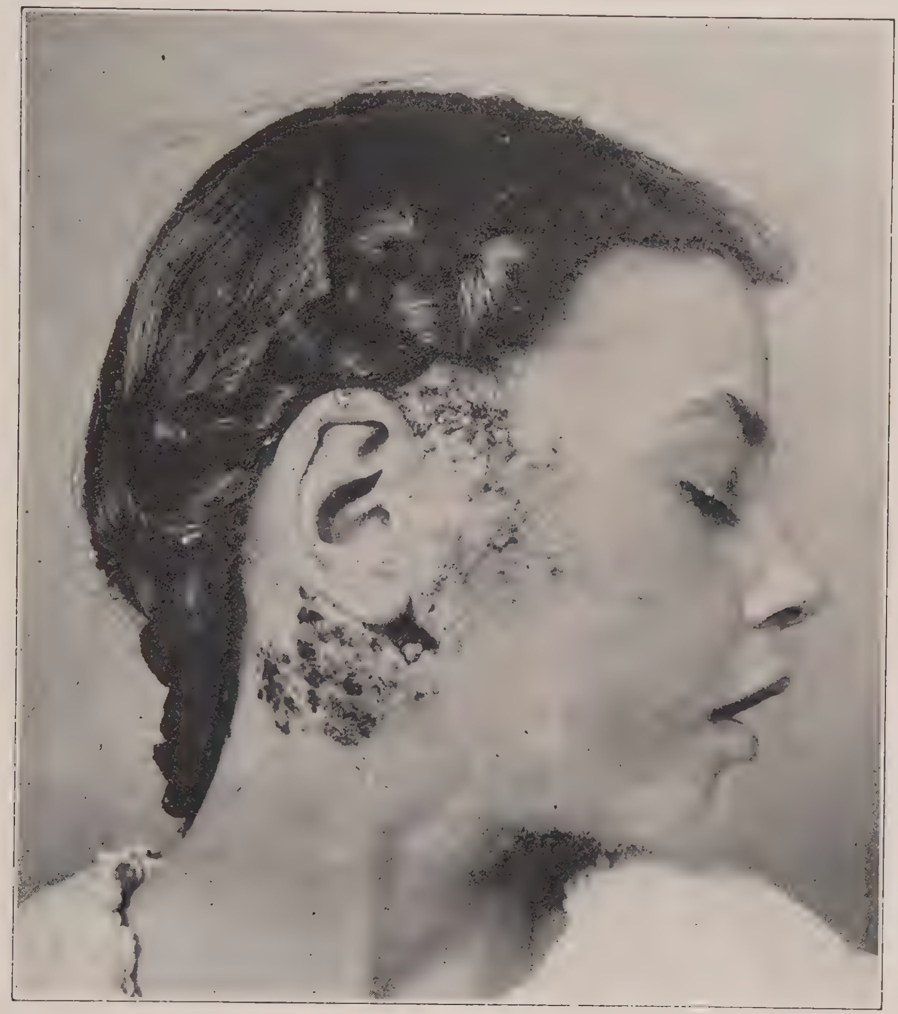

Fig. 46.—Eczema of Vesicular and Crusted Type.

Eczema in Infancy.—The preceding description gives a general idea of the symptomatology of eczema, which is the same in all periods of life. In infants and young children the disease is more apt to be accompanied by constitutional symptoms and is of a more acute and inflammatory type than that of later years. In infantile eczema there are frequent exacerbations which appear with great suddenness and often without any apparent cause. Relapses after apparent disappearance or quiescence of the process are also frequent. In infants the face is a special site of predilection, the pustular type is relatively common and the neighboring lymphatic glands are frequently enlarged. Eczema in infants is extremely common, much more so than in the later years of childhood. The disease may occur within the first two weeks of life, though as a rule its first appearance is after this period. Finkelstein makes a distinction between eczema in young infants (under three months) and infants who are older. In the early period he considers that there is a special tendency to universal or widely disseminated eruptions, whereas in the later period of infancy the disease is more or less localized, especially on the face. Intertriginous eczema is seen more commonly in the early months and is due to friction and maceration of opposing surfaces. The type which arises on a seborrheic basis may be localized or generalized and in its severest forms is similar to the exfoliative dermatitis described by Leiner. According to Finkelstein there is a fairly well-defined relationship in these early cases between body weight and the severity of the eruption. In babies that are poorly nourished, the eruption is apt to be more extensive, the worst combination being undernourishment with diarrhea. Normal babies under three months are not often victims of eczema. In infants of this age, the disease may occur whether they are breast fed or bottle fed.

The type of eczema in older infants is seldom severe in spite of its frequently alarming appearance, which is probably more distressing to the parents than to the patients. The eruption is seen most frequently on the cheeks, forehead and chin. The distribution is mask-line and usually spares the nose and the region about the eyes and mouth. In some cases the process is mild and consists of dryness, redness and a few tiny papules or vesicles. In others the affected areas present diffuse, weeping or crusted and excoriated surfaces. While the face is the favorite site, the disease may also involve the scalp, neck, region behind the ears and the buttocks, trunk and extremities. As a rule it is not widely disseminated.

There is a relationship between eczema and body weight in eczema of older infants. While in young infants the disease is usually associated with malnutrition, in older infants the opposite may be true. Some of these babies are the picture of health except for the eruption. According to Finkelstein, however, the disease is twice as frequent in infants who are undernourished as in those who are normal or overweight.

In spite of the frequency of pustulation there are rarely any serious complications due to pyogenic infection. Occasionally boils or erysipelas may occur and in rare instances general sepsis and death. Hutinel and Rivet report nine such cases in infants seen in hospital practice. Cases of sudden death in infants suffering from eczema are supposedly due to status lymphaticus, toxic or septic absorption or causes other than eczema. The idea of the laity that the disease may be "driven in" by too speedy a cure and result in more serious disease of internal organs is not considered to have a scientific basis. A specially dangerous complication is generalized vaccinia from auto- or hetero-inoculation. Severe constitutional symptoms ensue in such cases and death is a frequent outcome. In those that survive there may be blindness due to corneal involvement. Children with an eczematous eruption, especially when oozing is present, should not be vaccinated or brought near other vaccinated persons. Infection with bacillus pyocyaneus or the bacillus of diphtheria are possible complications.

ECZEMA IN OLDER CHILDREN.—The disease in older children is similar to that of adults. There is less tendency to marked thickening of the skin in eczema in childhood and an absence of the severe papillomatous and verrucous types which occur at times in adults. Occupational eczema is naturally rare in children and the same is true of eczema of the palms and soles and of the legs in association with varicose veins. The disease in children as opposed to that in infants assumes a drier type, which is, however, often intensely itchy. The face and scalp are much less frequently involved, one of the favorite sites being the flexor surface of the extremities.

Etiology.—Eczema is extremely common in infancy and gradually lessens in frequency with increasing years of childhood. Both sexes are equally susceptible and the disease is seen in all races and climates. It is more common in blondes and in children with red hair than in brunettes. Heredity does not seem to play an important rôle, nor is a familial tendency very noticeable. When the latter is present, it is apt to occur, according to my experience, in cases giving a history of respiratory affections, especially asthma and hay fever.

Eczema may be due to innumerable causes, resembling urticaria in this respect. These are both local and constitutional and frequently act in combination. The local causes are usually the exciting ones. The external agents which may irritate the skin and cause eczema are mechanical, chemical, thermal and actinic in nature. Mechanical irritation may be due to friction of the clothing, but most often it results from scratching. Eczema may be produced by scratching alone, as in neglected cases of pediculosis and scabies or in simple pruritus. Its action, however, is usually to increase the severity of an existing eczema. The action of cold, especially cold wind, may precipitate an attack of eczema and an existing eruption frequently becomes worse during the winter months. On the other hand, hot weather or too heavy clothing often causes miliaria and intertrigo which may become eczematous. Even sunlight may precipitate eczema. Of the chemical irritants to which the tender skin of infants is subjected, soap and water are of prime importance. Their overzealous use may be as harmful as their neglect. The infant skin is also subject to frequent irritation from saliva, nasal discharge, urine and feces. The numerous chemical irritants to which adults are exposed have little bearing on the causation of eczema of children and particularly of infants. In view of the fact that the infantile skin is thin, delicate and more liable to injury than in later years, some consider that local irritants alone are responsible for infantile eczema. This opinion is expressed by Hall after an extensive study of the subject. The frequency of the disease on the face may be due to the unusual exposure of this part of the body.

It is generally agreed that eczema is not primarily due to the action of bacteria. The vesicles are usually free of all microörganisms at the outset, though secondary infection is extremely frequent and plays a prominent part in infantile cases. At all events, eczema is neither contagious nor inoculable. It is not to be confused with the disease first described by Engman as infectious eczematoid dermatitis, which results from some preëxisting purulent focus. Lesions which are indistinguishable from eczema may be caused by the presence of fungi. Such a condition is classed as a fungous infection and is generally spoken of as dermatophytosis.

The internal or constitutional causes are usually predisposing and in infants consist chiefly of nutritional or digestive disturbance. The infant may be undernourished or less frequently overnourished. Many, however, are of normal weight and appear to be in perfect health. Digestive troubles, especially diarrhea or constipation, are frequent. In examination of the stools, Towle and Talbot found frequent indigestion of fats and sugars in the moist types of infantile eczema. C. J. White found an excess of fat in the stools in the moist type and an excess of starch in the dry forms. In a later study he reported an excess of fat in 60 per cent and an excess of starch, sugar and protein in 40, 20 and 10 per cent respectively of the cases examined. Dentition has been thought by some to be a factor in causing eczema, possibly by lowering the general resistence or by some reflex action. In older children, disturbances of metabolism, of elimination or of the ductless glands, such as diabetes, nephritis and hyperthyroidism, may occasionally be of etiologic importance.

There is a growing tendency to consider eczema, occurring at all ages to be an allergic process. An infant may be sensitized to certain foods, when either breast fed or artificially fed. In the former cases the sensitizing proteins may pass through the mother's milk. Some valuable information has been obtained by cutaneous tests, as shown by Schloss, O'Keefe, Sidlick and Knowles, Engman and Wander, Spohn and others. Schloss in a series of seventy-seven infantile cases found positive reaction in 65 per cent, O'Keefe obtained positive reactions in 61 per cent of breast-fed and 41 per cent of bottle-fed babies and older children. Spohn in a series of twenty-two cases found that 80 per cent reacted positively to the skin tests.

Pathology.—Histologically the initial changes are hyperemia and exudation in the upper cutis with subsequent seeping of serous fluid into the overlying epidermis. The edema in the rete lies between the individual cells and collects in minute vesicles which gradually enlarge and become visible to the eye. The discharge of fluid on the surface takes place from ruptured vesicles and from upward pressure of the new formed fluid through ruptured vesicular openings, "eczematous pores." The process by which the vesicles are formed is an interstitial one and is known as spongiosis. As a result of the edema there is a disturbance in the normal process of cornification. The granular layer disappears and the normally dry cells of the horny layer are moist and retain their nuclei (parakeratosis). The cells of the rete also undergo hyperplasia with thickening and lengthening of the pegs (acanthosis) and corresponding elongation of the papillæ. This change is the main cause of the thickening of the skin, most marked in chronic dry types of the disease.

Diagnosis.—Diseases occurring in infancy which may simulate eczema include syphilis, miliaria, intertrigo, contagious impetigo and erysipelas. A papulosquamous syphilid may resemble eczema, but the lesions are of a duller shade of red, do not itch and are apt to affect the palms and soles, where infantile eczema is not often seen. Other signs of syphilis may be present. In miliaria the lesions are always discrete and cause burning rather than itching and are associated with sweating; there is no rupture of vesicles or oozing and the process runs a short self-limited course. The differentiation of erythema intertrigo and eczema intertrigo may be difficult, especially as the former may gradually change to the latter. In erythema intertrigo, the moisture which is present, lacks ability to stiffen the linen which is characteristic of eczema. Impetigo contagiosa differs from eczema in its lack of itching and infiltration, its location on regions usually spared in eczema (nose and ears) and its ready response to treatment. Erysipelas is recognized by the invariable presence of constitutional symptoms including decided rise of temperature, by the sharply demarcated border and by the presence of leukocytosis. Erysipelas may occur as a complication of eczema.

The diagnosis of infantile eczema is not difficult as a rule. Mistakes are more apt to be made in eczema of children. Eczema may be simulated by severe and neglected cases of scabies. As a matter of fact in all chronic, itchy diseases, such as prurigo, dermatitis herpetiformis or papular urticaria, there is apt to be secondary eczematization from scratching. In scabies the diagnosis is usually made from the symmetrical distribution on favorite areas including the web of the fingers, front of the wrists, axillary folds, buttocks and genitals. The lesions in scabies are more discrete than in eczema and the itching is always most marked after getting into bed. The presence of burrows and the demonstration of the acarus are conclusive. Eczema of the nape of the neck in young girls with long hair should always suggest the possibility of pediculosis of the scalp. Psoriasis and eczema in older children may be difficult to differentiate especially after the scales have been removed by bathing or ointments. The patches of psoriasis are sharply demarcated, usually symmetrical, always dry and may show typical white micaceous scales. "Bleeding points" may be seen and itching may be present or absent. Psoriasis is very common on the scalp and the extensor surface of the extremities and may cause characteristic nail changes. The patches of eczema are ill defined, they may or may not be symmetrical and are moist or at least show a tendency at some time to moisture. The scaling is branny or lamellar. Eczema invariably causes itching and affects the flexor surfaces by preference. Lichen simplex chronicus is characterized by dry, intensely itchy patches, which are extremely persistent if untreated. The affection first described by Engman as infectious eczematoid dermatitis is associated with some local suppurative process. The patches are well defined, undergo peripheral extension and have mild subjective symptoms.

Treatment.—The treatment of eczema is both general and local. the latter being advisable if not necessary in all cases. While some of the general principles are the same for both infants and children, certain features make it advisable to consider the two classes separately.

A. In infantile eczema, dietetic treatment is important, much more so than in eczema in older children. In some cases it effects a cure without any other treatment, in others it is helpful and in still others it has no effect on the disease. The proper nutrition should be maintained and gastro-intestinal disturbances relieved. If the latter are not present it should be ascertained whether the baby has been fed too much, too little or improperly, and the diet changed accordingly. The best results from dietetic treatment are seen in dyspeptic and undernourished infants and in those who are overnourished and are suffering from the oozing type of eczema. Whether the baby is breast or bottle fed the diet should be low in both fat and sugar, though a starvation diet is neither necessary nor proper. According to Finkelstein, in nursing babies which are properly fed and which gain only moderately in weight and suffer from the dry type of eczema, dietetic measures are useless and entire reliance must be placed on external treatment.

Lucas states that vegetable food may be given after the third month and also thick cereals, for which these babies have a high tolerance. Stool examinations may throw light upon the failure to digest either fats or starches. The protein skin tests are of value in detecting foods which may cause sensitization. In breast-fed babies these tests should be performed on both the mother and child. Removal of certain foods (which give positive reactions) from the mother's diet may have a favorable effect on the baby's eczema. In regard to internal medication it may be said that no drug has any specific action on the disease.

The external treatment of infantile eczema is always important and must be carried out with care in all of its details. It is essentially symptomatic and varies with the stage and to a less extent with the location of the disease. One of the important features to bear in mind is that the affected parts should be protected as far as possible from external irritation. This includes cold (especially cold winds) and excessive warmth from clothing, bedclothes and overheated rooms. Of greater importance is the prevention of mechanical irritation from friction of rough underclothing and especially from scratching, which increases the extent and severity of the disease and adds to the secondary infection. The effects of scratching are lessened when the nails are cut short and mittens are worn though it is often necessary to apply mechanical restraint. This is not so important in newborn infants. In older infants a splint may be applied to prevent bending the elbow and reaching the face. For this purpose, an ordinary cardboard mailing tube may be used with careful padding near the axillæ to avoid chafing. The sleeves may also be pinned to the bedclothes. A mask for the face not only affords protection but is a convenient means for keeping the medicament in place. It may be made of soft linen or stockinette, the latter being useful on account of its flexibility. Holes are cut for the eyes, nose and mouth and tapes are fastened about the head and beneath the chin. It is hardly necessary to say that soap and water are irritating to acute forms of eczema, though in chronic forms in older children their occasional use may be beneficial.

For an acutely inflamed skin whether due to eczema or other causes, especially when there is associated edema, nothing in my opinion is better than cold, wet dressings. In my practice I invariably use a saturated solution of boracic acid because it is soothing, especially about the eyes, and is a cheap and readily obtainable remedy. My patients are instructed to make a saturated solution (teaspoonful to a glass of water) and to add a small piece of ice to a bowlful of the liquid. Dressings are to be intermittently applied every few minutes and should never be allowed to dry, nor should the compresses be covered by oiled silk or other impermeable substance. Cold compresses, however, require constant attention and after a day or so may be followed by other remedies.

The most useful local remedy for infantile eczema, in my opinion, is crude coal tar. Its action is totally different from wood tars (ol. cadini, ol. rusci and pix liquida) which are irritating and are only to be used in the dry, quiescent stages of eczema. I have used crude coal tar in pure form for oozing surfaces of eczema with good results. My preference, however, is to use the drug in a modification of the form suggested by C. J. White which consisted of two parts each of crude coal tar and zinc oxid mixed with sixteen parts each of starch and vaselin. This preparation seems difficult to compound and is frequently a mixture of dirty vaselin instead of a moderately thick paste. I have accordingly increased the proportion of starch to twenty and lowered that of vaselin to twelve. The coal tar mixture is to be applied in a thin layer to the skin and dusted with talcum until a fairly dry film is formed. It is then covered by a dry dressing largely for the sake of cleanliness. It is to be removed once a day with great gentleness with olive oil and a new layer applied. Frequently a severely oozing surface becomes dry after a few applications. To remove the stains of tar from the linen, White suggests that lard be applied to both sides of the fabric and allowed to remain for an hour, after which it can be readily removed by soap and water.

Zinc oxid in the form of a paste, such as Lassar's paste, is one of our main reliances in eczema. In applying any paste, the medicament should first be spread upon the dressing (linen, stockinette, gauze, etc.) and then laid upon the skin and held firmly in place by bandages. Ointments should not be used on an oozing surface as the secretion collects beneath them, decomposes and causes irritation. In cases of severe oozing which cannot be controlled by the above remedies, the affected parts may be painted with 2 per cent silver nitrate solution, followed by the application of zinc paste. Ointments or pastes are to be applied once or twice daily and once in three or four days the surface may be gently cleansed with absorbent cotton soaked in olive oil or a more pleasant substitute, sweet almond oil.

One of the general principles of treating skin diseases is to remove crusts before applying any remedial agent. This applies especially to eczema of the scalp. Crusts may be removed in some cases by the continued application for several days of olive oil with or without the addition of 3 per cent salicylic acid. To make this procedure more effective a cap of oiled silk or gutta percha may be applied to the scalp and held in place by bandages. Cutting the hair short favors the removal of crusts and subsequent medication of the scalp. Shaving the scalp is not necessary.

In the dry, scaly and quiescent types of eczema, stimulating remedies are indicated of which some preparation of wood tar (especially oil of cade) is most useful. It should be used with caution, beginning with a mild strength (3 per cent) and increasing gradually, according to indications.

B. ECZEMA IN OLDER CHILDREN does not respond very satisfactorily to dietetic treatment. In these cases it is often extremely difficult to discover any causative factor and the general treatment is then directed toward improving the health as far as possible. Stool examinations showing the presence of carbohydrate fermentation or protein putrefaction may be helpful by suggesting changes in the diet. The same applies to sensitization tests which, however, have not been very useful in my experience.

For the local treatment of acute cases the same remedies may be used which have been suggested for infantile eczema. In older children, however, the disease assumes a less inflammatory and more often dry and scaly type than in infants. In such cases, wood tar may be used either in vaselin or in zinc ointment in 5 to 10 per cent strength. Salicylic acid in ointment or plaster form in 6 per cent strength is of value. Many other drugs are used including ichthyol, which in my opinion is of little or no value. This overrated remedy owes much of its reputation to its mysterious source (beds of fossil fishes), its introduction by a prominent dermatologist and possibly the very fact that it is a dirty and disagreeable-smelling remedy. In the most obstinate cases, no drug is of greater value than chrysarobin, which is best used in ointment form, and if the most intense effect is desired, covered by an impermeable dressing (see psoriasis).

The Roentgen rays constitute the most valuable single agent for the treatment of skin diseases and among those which are amenable to that remedy is eczema. There is a mistaken idea that the Roentgen rays should be reserved for the most intractable and thickened types of eczema. This is by no means true as innumerable cases of subacute intensity respond most favorably to its action. I have even used it in a few infants in which dietetic treatment by experienced pediatricians did not effect a cure. Ultraviolet light from mercury vapor lamps or other sources has been rather unsatisfactory in my experience.

Prognosis.—In infantile eczema the prognosis is usually good, though the disease is a persistent one and extremely liable to undergo relapse after apparent cure. The majority of cases recover before the end of the second year. In some, the disease continues into early childhood and in a few it remains during life, usually with remissions. Eczema beginning in older children is also apt to be chronic and capricious in its course. In infants and children its response to treatment is favorable in the great majority of cases.

BIBLIOGRAPHY

Engman, M. F. Dermatitis Infectiosa Eczematoides. Am. Med., 1902, 4: 769.

Engman, M. F., and Wander, W. G. Application of Cutaneous Sensitization to Diseases of the Skin. Arch. Dermat. & Syph., Chicago, 1921, 3: 223.

Hall, A. J. A Further Note on the Ætiology of Infantile Eczema. Brit. J. Dermat., London, 1908, 20: 4.

Hutinel, V., and Rivet, L. Septicémies Graves au cours des affections Cutanées des Jeunes Enfants. Arch. de méd. d. enf., Paris, 1909, 12 : 1.

Lucas, W. P. Modern Practice of Pediatrics, New York, The Macmillan Co., 1927, p. 315.

Neter, E., and Roeder, H. Über die Hautkrankheiten im Säuglingsalter und ihre Behandlung. Berl. klin. Wchnschr., 1904, 189: 1.

O'Keefe, E. S. The Relation of Food to Infantile Eczema. Boston M. & S. J., 1920, 183: 569.

——— Eczema in the Breast Fed Baby and Protein Sensitization. Boston M. & S. J., 1921, 186: 194.

Schloss, O. M. Allergy in Infants and Children. Am. J. Dis. Child., Chicago, 1920, 19: 433.

Sidlick, D. M., and Knowles, F. C. Value of Cutaneous Sensitization Tests Employed in Eczema and Papular Urticaria of Childhood. Am. J. Dis. Child., Chicago, 1922, 23: 316.

Spohn, H. Infantile Eczema. Canad. M. Ass. J., 1922, 12: 461.

Towle, H. P., and Talbot. Infantile Eczema and Indigestion. Am. J. Dis. Child., Chicago, 1912, 4: 219.

White, C. J. The Anaphylactic Phenomenon in Eczema and the Recent Progress in Our Knowledge of the Etiology and Treatment of the Disease J. Cutan. Dis., New York, 1916, 34: 57.

——— Crude Coal Tar in Dermatology. Arch. Dermat. & Syph., Chicago, 1921, 4: 796.

——— Infantile Eczema and Examination of the Stools. Arch. Dermat. & Syph., Chicago, 1923, 7: 50.

CHAPTER VIII

SCALING DISEASES

PSORIASIS

Psoriasis is an important affection occurring in about 4 per cent of all skin diseases seen in the United States. It is less common in children than in adults.

Symptoms.—The onset may be rather sudden, especially when it appears on the trunk as small-sized lesions. This is more apt to be the case in children than in adults. As a rule, the onset is insidious and gradual and is not accompanied by constitutional disturbances.

The lesions of psoriasis are essentially similar, in spite of their varied clinical forms. The eruption is not polymorphous, but is always a dry, scaly process without any tendency to the formation of vesicles, bullæ or pustules. The typical lesion is a macule or maculopapule of some shade of red and covered by a silvery white, mica-like, brittle scale. The lesions vary in size from a pinhead to those involving large areas of the body and in some cases (chiefly adults) the entire cutaneous surface. The thickness of the patches, which varies greatly, is due mainly to the scaling, but also to edema and cellular deposits in the skin. The characteristic silvery whiteness of the scales, due to the presence of air, is not always present. From admixture with dirt they may be brownish or blackish or may be greasy in those with an oily skin. A characteristic phenomenon, known as Auspitz's sign, is obtained by scraping the scales with the finger nail or curet until a shiny red pellicle is seen with minute puncta, representing the tops of the capillaries in the papillæ which are dilated and comparatively near the surface. On further scraping, bleeding points may appear, but no oozing of serum, as in eczema. The lesions are always sharply demarcated and may show a narrow, reddish areola, the scales not completely covering the patches. They enlarge by peripheral extension rather than by coalescence of small lesions. The large, diffuse areas which are seen chiefly in adults are formed by fusion of smaller patches. Descriptive adjectives may be used to qualify the numerous clinical forms. In punctate psoriasis, pinhead lesions are present, while in the guttate variety they are pea to bean sized and resemble drops of mortar scattered over the skin. Nummular psoriasis denotes an eruption of coin-sized lesions. There is a marked tendency for the patches to undergo central involution and form circles (annular psoriasis). By coalescence of such rings, gyrate or festooned or map-like figures are produced.

There is no essential difference in the appearance of the disease in childhood and adult life. In infants it is stated that the lesions look paler and more yellowish and suggest seborrheic eczema. In children the eruption is more apt to appear as guttate, nummular, or annular lesions rather than thick, diffuse patches. In other words, the type is milder than in adults. The extensive and greatly thickened patches with fissures and the so-called rupial type are rarely seen in children. A case of rupial psoriasis in a boy of six is reported by Vignolo-Lutate (quoted by Oberländer).

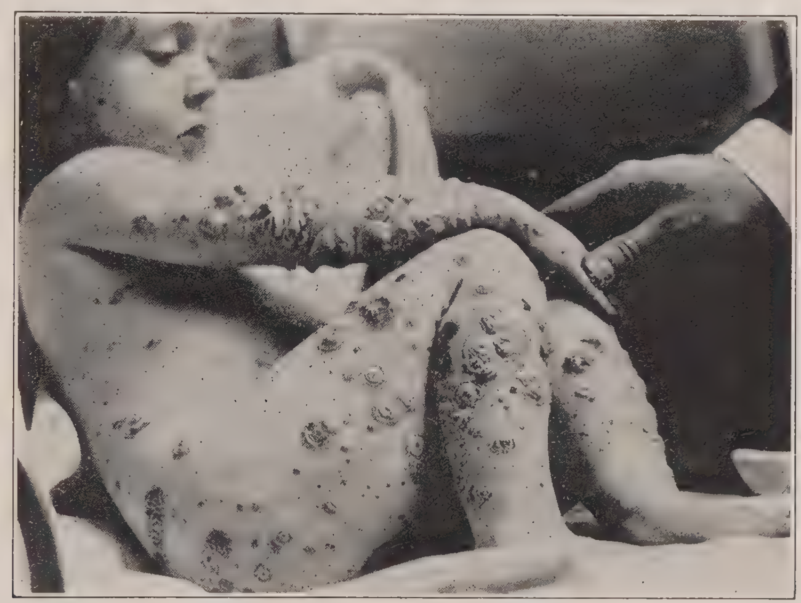

Fig. 47.—Psoriasis of Severity Not Often Seen in Childhood.

Favorite sites include the scalp, extensor surface of the extremities, especially the elbows and knees, the lumbar region and the nails. The trunk is often involved, especially in the more acute cases. The face, palms and soles are usually spared. The eruption as a rule is more or less symmetrical. In only the rarest instances have the mucous membranes been involved, some of these cases being possibly mistaken for leukoplakia (seen almost entirely in men). In spite of frequent involvement of the scalp, the growth of hair is not appreciably affected. Psoriasis of the nails has two characteristic features, punctate depressions scattered over the nail plate and hyperkeratosis under the free border with separation of the nail plate from the nail bed. These changes are almost entirely confined to older children and occur in about 10 per cent of the cases.

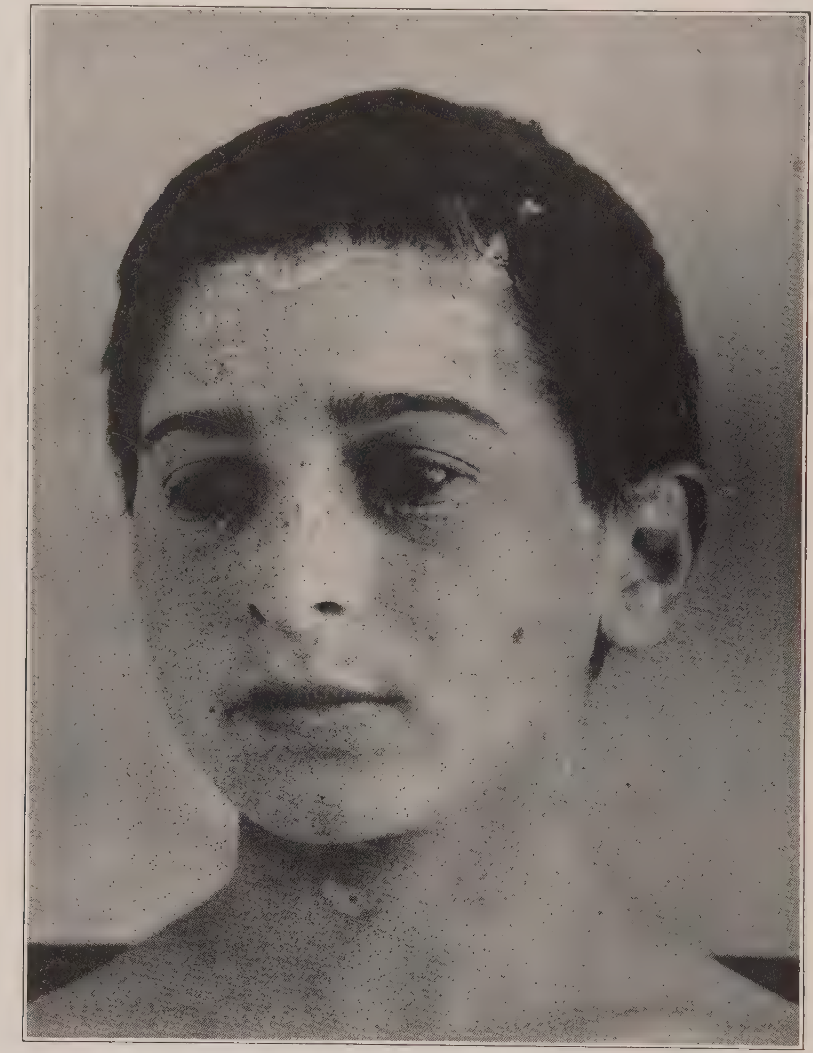

Fig. 48.—Psoriasis Showing Frequent Site of Lesions Near Border of Scalp.

Subjective symptoms vary greatly in psoriasis. In the majority of cases there is little or no itching. In some it may be moderate and in others severe, though intense itching occurs mostly in extensive cases in adults. There are no constitutional symptoms. The general health in the majority of cases is surprisingly good and the victim of psoriasis is usually the robust, vigorous and apparently healthy type of individual.

The course of psoriasis is chronic and capricious. The disease may appear rather acutely and may disappear completely under treatment, or spontaneously. As a rule a few lesions remain and prove resistant to treatment. The course is characterized by exacerbations at irregular intervals of months or years. Successive attacks may be of different types. When psoriasis disappears it leaves no scarring or other sequelæ except at times some temporary pigmentation or rarely, depigmentation, the so-called leukoderma psoriaticum.

Etiology and Pathology.—It is generally agreed that psoriasis is rare in children under five years of age and that it is extremely so in infancy. The youngest case has been reported by Rille. This was an infant of thirty-eight days, presenting a typical eruption which, according to the mother's statement, had first appeared on the fifth or sixth day. The disease is much more frequent in older children, though less so than in adults. It is difficult to judge of the frequency in childhood from statistical reports which show a wide variation. Nielsen, in a series of 548 cases, found that the disease began before the fifteenth year in 40 per cent. Abrahams reported the beginning of the disease in youth, in 64 per cent of 355 cases. Other observers have found a much lower proportion, as stated by Oberländer in his thesis on psoriasis in childhood. It is probable that psoriasis appears before the age of puberty in nearly half of the cases.

The question of heredity as a cause of psoriasis has been much discussed and opinions have differed rather widely. There does not appear to be any proof of the true hereditary transmission, but there is rather a family predisposition similar to that observed in tuberculosis. Schamberg thinks it "scientifically more accurate to speak of family incidence rather than heredity." In his series of 592 cases, he found that, in 13 per cent, more than one member of a family was affected. Higher percentages of familial occurrence have, however, been recorded. In only 5 per cent of Schamberg's cases was there a record of the disease occurring in a parent and child. It is rare for psoriasis to occur in more than three generations. According to Nielson, it appears earlier in children who give a history of psoriasis having occurred in a parent or grandparent. There is no reliable evidence that the disease is contagious.

Psoriasis occurs in all classes of society but shows a marked racial difference in the case of negroes. It is extremely rare in full-blooded negroes, though such cases have been reported by Winfield, Parounagian, myself and others. Psoriasis is a disease of cold and temperate climates, being rare in the tropics and the orient. It is usually worse in winter than in summer.

The cause of psoriasis is unknown in spite of painstaking research. It has been ascribed to rheumatism, gout, nervous influence or endocrine disturbance, though without convincing proof. In Schamberg's cases there was a history at some time of pain or swelling of the joints. He found no abnormality in the phosphorous, calcium or potassium content of the blood. The two theories of causation which seem most plausible are the metabolic and microbic. The latter is thought to be favored by the sharp border of the patches, the tendency to clear in the center, the miliary abscesses of the rete and the action of certain antiparasitic drugs. Kyrle, who favors this theory, found that the earliest lesions were confined to the epidermis, suggesting an external causation. No specific organisms have yet been found. Pollitzer thinks that the disease is "most probably due to an external microbic infectious agent."

The histopathologic structure of psoriasis is fairly characteristic and includes parakeratosis and acanthosis with elongated rete pegs, the tops of which are covered only by a few rete cells (accounting for the "bleeding points" described above). Munro's abscesses, consisting of minute collections of leukocytes in the upper rete, extend into the horny layer.

Diagnosis.—In the majority of cases, the diagnosis is easy. The disease perhaps most often confused with psoriasis is seborrheic eczema. In some cases it is impossible to make the distinction either clinically or histologically. In seborrheic eczema the scales are less profuse, smaller and more greasy than in psoriasis and are of a dirty yellowish color as opposed to the silvery white psoriatic scales. On their removal bleeding points are not present, and the surface is less reddish and may be moist and greasy. The favorite sites do not include the elbows and knees which are characteristic of the latter disease.

Dry scaly patches of eczema may resemble psoriasis, though they lack the silvery scales and are not as sharply defined as in the latter affection. There is always a tendency to oozing in eczema and some evidence of vesiculation may be present. Itching is always present and may or may not be evident in psoriasis.

Pityriasis rosea is more superficial than psoriasis, the scales are branny and no bleeding points are elicited on their removal. Circinate lesions, if present, show a characteristic fawn colored and wrinkled center. The favorite site is the trunk, the disease not appearing on the scalp, where psoriasis is frequently seen. Its course is rapid and self-limited, and it does not recur except in very rare instances.

Ringworm of the glabrous surface usually consists of fewer lesions than psoriasis. Silvery scales are not seen and the border may show the presence of minute vesicles. The diagnosis is confirmed by finding the causative fungus under the microscope.

Lichen planus shows characteristic polygonal flat, shiny papules, the scaling is less abundant than in psoriasis and not of the silvery micaceous type. Patches are formed by coalescence of small lesions and not by peripheral extension of individual ones as in psoriasis. They have a characteristic violaceous color. Itching is not of diagnostic value, as it may be present or absent in either disease. Pityriasis rubra pilaris (lichen ruber acuminatus) may resemble psoriasis at times. Its features are described under that disease.

Favus of the scalp with areas of baldness and scarring should not be mistaken for psoriasis, which causes no appreciable loss of hair. In cases, however, in which baldness has not taken place and in which there are mortar-like crusts in place of typical favus "cups," a resemblance to scaly patches of psoriasis may be present. The diagnosis is readily settled by the microscope.

The papulosquamous eruption of acquired syphilis may closely simulate psoriasis but would be confined mostly to adults. In syphilis, the scales are more delicate, smaller in amount and of a dirty yellow color. They are often detached in the center of a papule and appear as a marginal collarette. The eruption of syphilis is more uniform in size, the color is a darker red, the distribution favors the flexor surfaces and there is no itching. Other clinical or serological evidence might settle the diagnosis.

Treatment.—Although psoriasis is a chronic and often obstinate disease to treat, much can be done to relieve it and cause at least temporary involution of the lesions. No one of experience talks about the permanent "cure" of psoriasis. In spite of the robust and healthy appearance of psoriatic patients, any deviation from the normal condition should, if possible, be corrected. Results of treatment are extremely variable. A certain remedy will act in a most gratifying manner at one time and fail completely at another. This is not only true of different patients but of different attacks occurring in the same patient. Some of the disappointing results are due to failure to recognize the difference between the acutely inflamed and the quiescent stages. When the eruption is acute or actively spreading, certain otherwise valuable remedies, such as chrysarobin or arsenic, do more harm than good. In the treatment of psoriasis, both internal and local remedies are of value.

The drug which has been used the most and has probably given the best results is arsenic, though its value, I think, is overrated. It is contra-indicated in acute cases and in exacerbations of the more common chronic forms. Arsenic may hold the disease in check for a time or even occasionally cause its permanent disappearance. It must be administered for long periods (months) to obtain results, and there is always a possibility of ill effects from the drug itself (pigmentation, keratosis). Arsenic is administered most often as Fowler's solution in the usual manner of ascending dosage. It is perhaps more suitable for children than intramuscular injections of sodium cacodylate or sodium arsenite. Other preparations containing arsenic, such as atoxyl and enesol, have had their adherents. Arsenic in the form of arsphenamin or allied drugs is not to be recommended for psoriasis, the results being generally unsatisfactory. Intravenous injections of sodium salicylate (first used by Sachs) have been tried of late with encouraging results in some cases. Maloney, however, in the treatment of twenty cases, found the method disappointing "only slight benefit being derived."

Other drugs which have been highly recommended at different times include potassium iodid (in large doses), pilocarpin, wine of antimony and thyroid extract, though the results obtained have been very inconstant.

The dietetic treatment of psoriasis for the ordinary ambulatory patient is in general unsatisfactory. From the work of Schamberg and his coworkers, a low protein diet is indicated, but satisfactory results can only be obtained, as they state, in "hospital patients and under ideal conditions." In their cases, in which the diet contained a maximum of 4 grams of nitrogen per day with no other treatment, astonishing involution of lesions was seen to take place in the course of a number of weeks. In extensive and obstinate cases it is certainly proper to put the patient on a low nitrogenous diet as an adjuvant to other methods of treatment.

Autoserum injections, originally suggested by Spiethoff and later used by Gottheil and Satenstein, myself and others with encouraging results, have given rise to conflicting opinions as to their value. This method consists in withdrawing 50 to 100 c.c. of blood (in adults) from a convenient vein, separating the serum by a centrifuge and reinjecting it either intravenously or intramuscularly. The injections in my cases were given in conjunction with local treatment by chrysarobin and appeared to increase the activity of the latter remedy. According to Schamberg, the object of this method is to "inactivate" the process; that is, to change an active to an inactive or quiescent stage. Ormsby states that he has used the method constantly for ten years and considers it to be of "distinct value in many cases." Other methods of inactivating the psoriatic process consist of injections of foreign proteins, such as typhoid vaccine advocated by Engman and of millet and alfalfa seeds recommended by Van Alstyne.

Local treatment of psoriasis is important and usually produces better results than internal remedies, though both may be used together. The primary object of local treatment is to remove the scales. This is usually accomplished in a few days by daily warm baths with vigorous use of soap (especially sapo mollis). Those who suffer from psoriasis can never bathe too frequently. During the summer months I always urge my patients to go to the seashore, if possible, for the combined beneficial effects of bathing and sunlight.

After the scales have been removed a stimulating remedy is to be applied. For this purpose, chrysarobin is without doubt the most valuable drug, especially when used as an ointment. Unfortunately it has certain disagreeable features. It stains the skin and especially the hair and nails and may cause severe conjunctivitis. For these reasons it should never be used on the face or scalp. Furthermore it stains the underclothing and bed linen an indelible mahogany brown. In spite of these disadvantages, it produces results which are not approached by any other drug, except possibly pyrogallol. The action of chrysarobin seems to depend on its ability to create a dermatitis rather than on its bactericidal or parasiticidal qualities, which are slight. The remedy is to be applied until the skin surrounding the lesions is highly inflamed and after a few days' rest, reapplied if occasion warrants. Patches of psoriasis should thus be treated until they are white and entirely free from scales. At the conclusion of successful treatment, in place of the original reddish patches on a white skin the appearance is reversed, the treated lesion appearing as white spots on a reddened background. Chrysarobin should never be used in acute eruptions of psoriasis. It should always be used with caution at the outset, especially on the trunk and flexor surfaces where the reaction is much more violent than on the extensor surfaces. The drug is most effective as an ointment, a suitable base being equal parts of vaselin and lanolin. For the trunk and flexor surfaces, a 3 per cent ointment may be used at the outset and increased later if necessary. In persistent thick patches on the elbows and knees of older children, I would not hesitate to use a 10 to 20 per cent ointment. If favorable results were not promptly obtained, the salve should be applied and covered with oiled silk or gutta percha, thus increasing the action of the drug. In cases where there is considerable dermatitis from chrysarobin, the patients are warned to keep water from the skin as they would be in severe sunburn. For such a condition an ordinary soothing ointment of zinc oxid is acceptable. In cases where it is not desired to use chrysarobin in ointment form, it may be incorporated in either collodion or traumaticin and painted on the patches. The effect is, however, far less satisfactory than when a salve is used. To 30 c.c. of flexible collodion or liquor guttæ perchæ, 4 grams of chrysarobin and 0.6 to 1.2 grams of salicylic acid are added. It is painted on the affected surface daily. A formula suggested by my father for localized areas consists of 10 parts each of chrysarobin and salicylic acid, 15 parts of sulphuric ether in 100 parts of flexible collodion. Substitutes for chrysarobin are neorobin and novorobin, which are effective in weaker concentration than chrysarobin.

Among other drugs which are employed for the local treatment of psoriasis, ammoniated mercury and tar are the most useful in my opinion. The former is best used in a 10 per cent ointment and is of considerable value in psoriasis of the scalp, where it is not desirable to use chrysarobin on account of its staining properties. Any of the three preparations of wood tar may be used, the oil of cade, in the opinion of most dermatologists and certainly in mine, being the most active. It should be used as a 10 per cent ointment and rubbed into the skin vigorously twice a day. Anthrasol is a colorless tar preparation which I have found by clinical tests to be much less effective than oil of cade in cases of eczema. The same would probably apply to psoriasis. Pyrogallol is a very active drug but less so than chrysarobin and it also stains the skin. It is not an entirely safe remedy and death has occasionally followed its absorption. I would not think of using it for children.

The Roentgen rays are valuable for the treatment of psoriasis, but should be used with great caution in this disease. Needless to say, in the treatment of any skin disease, they should be administered only by an experienced operator, with modern apparatus and with measured dosage. The danger in psoriasis is not that the lesions are especially susceptible to harmful effects but that recurrences are frequent and repeated irradiation of subsequent attacks may cause unjustifiable injury to the skin. It may be surprising for some to learn that this agent is excellent for psoriasis of the scalp, used in doses that affect the eruption without causing even a temporary fall of hair. It is used constantly in my practice, once in ten days for three successive treatments, raying the entire scalp as in the Kienböck-Adamson method for ringworm. It is not necessary to cut the hair or to mark the scalp with a blue pencil. Doses of one-quarter skin unit (unfiltered) are given for the first two treatments and one-eighth for the third. Following this procedure, suitable greasy applications may be used, consisting of ammoniated mercury or salicylic acid (3 per cent) in sweet almond oil, rubbed into the scalp daily and accompanied by frequent shampooing, preferably with tincture of green soap.

Treatment by heliotherapy deserves special mention. There can be no doubt about the beneficial action of ordinary sunlight in psoriasis when it causes a thorough pigmentation of the skin. It has already been mentioned that negroes are almost immune to psoriasis. Sunlight, in my opinion, is one of the most beneficial agents for causing at least a temporary disappearance of psoriasis. Areas of the skin which are thoroughly tanned will generally remain free of the disease as long as the tan remains. Children who are in a position to spend the summer at the seashore and acquire a tan approaching that of a life-guard will be temporarily relieved of their eruption. It is natural that ultraviolet rays in the form of mercury vapor or carbon arc lamps should have been widely used. In my experience their results are seldom equal to those of ordinary sunlight, though they constitute a useful and entirely safe method of treatment. Alderson, who has treated a large number of cases of psoriasis by the mercury vapor quartz lamp, considers this method relatively satisfactory and cleanly. "While it is not invariably successful," he writes, "I have often observed that psoriasis lesions clear up more effectively than under any form of treatment except roentgenotherapy."

Prognosis.—This should always be guarded as the course of the disease is most uncertain. It may be possible to cause the complete disappearance of an eruption, though as a rule a few lesions are apt to persist more or less indefinitely. Recurrences are common and a permanent cure should never be promised.

Summary of Special Features in Children.—Psoriasis first appears in childhood in nearly half of the cases. It is rare under five years and extremely so in infants. The youngest case on record is that of a six-day-old infant recorded by Rille. The type is milder in children than in adults and is more amenable to treatment. It is usually of the guttate, nummular or annular variety. The severe inveterate types with excessive scaling or fissuring are rare in children. The nails are not affected in young children.

PARAPSORIASIS

The convenient name parapsoriasis was suggested by Brocq, in 1901, to include several rare types of skin disease which have a number of features in common. Needless to say, the disease has nothing to do with psoriasis. These same types had been classified the year previously by Colcott Fox and MacLeod as "resistant, scaly, erythrodermia." The simpler term of Brocq is now generally employed. The affections included as parapsoriasis are superficial, inflammatory diseases with slightly adherent scales, occurring on the trunk, arms and legs, causing no subjective symptoms, running an indefinite course and not responding to treatment. Three types of parapsoriasis (guttate, lichenoid and patchy) are recognized.

The guttate type consists of reddish, lenticular spots which are smooth or show fine adherent scales and occur on the trunk and upper part of the limbs. New lesions appear separately or in crops. It suggests an abortive psoriasis or a maculopapular syphilis in the stage of involution.

The lichenoid type occurs as a more or less profuse eruption of smooth or scaly papules which coalesce to present a reticulated or mottled appearance. The papules are reddish-yellow on the trunk and darker on the legs. They are more distinctly papular and infiltrated than the lesions of the guttate variety. In the differential diagnosis, lichen planus, lichen scrofulosorum and syphilis must be considered.

The third type consists of round, oval or irregular-shaped, well-defined, somewhat infiltrated, reddish-yellow patches, from one to four inches in diameter. They are apt to closely resemble either seborrheic eczema or mycosis fungoides in the prefungoid type.

The cause of this rare disease is unknown. It is seen chiefly in adults but may occur in children, Haldin Davis reporting the case of a boy of eleven in whom the eruption had been present since early infancy. Parapsoriasis tends to persist indefinitely, due to the formation of new lesions, though cases of spontaneous involution are on record. Treatment ordinarily has no effect on the eruption. Chipman, however, reports three cases in which it disappeared under the use of the mercury vapor quartz lamps.

PITYRIASIS CAPITIS

Symptoms.—Pityriasis capitis or dandruff, according to Jackson and McMurtry, usually begins at or just before puberty and is only occasionally seen in children from six to ten years of age. In my experience it is uncommon in young children. In the variety known as pityriasis simplex the hair is usually dry and lusterless and shows a more or less generalized scaling of the entire scalp. The scales are grayish or whitish and either powdery or lamellar in structure. They cling to the hair like powder or tiny pieces of bran. In severe cases, they are noticeable on the clothing. Itching may be present or absent. The scaling is dry and there is no inflammatory appearance as in seborrheic eczema.

Etiology.—According to Sabouraud, the organism, known as spore of Malassez, is constantly found in the scales and is the cause of the disease. After a variable course the type may change to a greasy one, the so-called pityriasis steatoides, which Sabouraud thinks is due to an organism which he described as a polymorphous coccus with gray colonies. This type he considers to be the cause of subsequent baldness.

Diagnosis.—The important disease to differentiate is ringworm of the diffuse type. Careful examination may show the presence of broken hairs or stumps which on epilation show the causative fungus. Dandruff may also be mistaken for the ova of pediculosis. In the former disease the scales are easily detached from the hair, while this is more difficult in pediculosis, though the ova may be made to slide up and down the hair.

Treatment.—Shampooing with soap and water may cause the disease to disappear or at least hold it in check. When the scalp is dry, a bland neutral soap should be used, while if it is greasy, tincture of green soap is suitable. Shampooing with tar soap is also satisfactory. If shampooing alone is not successful, ointments or lotions containing tar, sulphur or resorcin are to be used. For this purpose an ointment containing 3 grams each of oil of cade and precipitated sulphur in 30 grams of cold cream is useful. If a lotion is preferred, resorcin and bichlorid of mercury in 50 to 75 per cent alcohol may be used to which castor oil is added when the scalp is dry (see Formulary). Euresol is a convenient substitute for resorcin in children with blond hair as it is free from the staining properties of resorcin.

ECZEMA SEBORRHEICUM

Eczema seborrheicum occurs most frequently in the adolescent period, but is also common in infants and at the age of puberty. It is a most difficult disease to describe, as opinions differ concerning types of eruption which should be included under this name. The disease has many synonyms, including seborrhea and seborrheic dermatitis. The name given it by Unna (eczema seborrheicum) is most frequently used, but is far from satisfactory, as the affection is not an eczema and is not always seborrheic. It may approach the type of eczema on the one hand and psoriasis on the other, though there are many border-line cases in which the diagnosis is difficult.

Symptoms.—The scalp is the commonest site, in infants as well as in older children, and appears to be often the starting point of the eruption. It tends to spread upon the forehead near the hair line where it may form a corona suggesting the corona veneris of acquired syphilis. Other characteristic sites are the nose and cheeks, the area behind the ears, the sternum and middorsal region, though the eruption may become generalized, especially in infants. It tends to occur in well-demarcated patches which are yellowish or yellowish-red and are only slightly thickened. There is scaling which is apt to be of a greasy type, but not invariably so. Itching is usually present to a variable degree, though less marked than in eczema, and may be entirely absent. The patches may clear in the center and form rings which are never seen in eczema. This type occurs often on the chest and back and may simulate pityriasis rosea. In other cases there are diffuse large patches, especially on the flexor surfaces which may be extremely persistent. The type which resembles psoriasis is apt to be profuse and generalized and is often extremely itchy. It is seen chiefly in adults, but may occur in older children. At times the eruption has a distinct follicular localization, appearing as small papules on a reddish-yellow base. The patches of seborrheic eczema may be few or numerous and may or may not be symmetrical. While they are usually dry there is moisture at times with resulting crust formation and indeed the type of eruption may change to a true eczema. The course of the disease is variable, responding readily to local treatment, though at times persisting for years or recurring frequently.

Etiology.—Eczema seborrheicum has long been suspected of being parasitic in origin. It has been ascribed to the micrococcus of Unna (probably identical with the *Staphylococcus epidermidis albus* of Welch), to the so-called bottle bacillus (spore of Malassez) and to the microbacillus of seborrhea (Sabouraud). From a recent report of MacLeod and Dowling, it would appear that the disease has been reproduced in man by inoculations of pure culture of the so-called spore of Malassez. These investigators state that this organism was cultivated as early as 1908, by W. G. Garner. In the experimental work of MacLeod and Dowling, the disease was reproduced in persons suffering from seborrheic eczema and also in normal individuals. Whitfield, in discussing the presentation of these authors, considered the clinical test now produced perfectly convincing. Confirmation of this work will be of great interest.

Diagnosis.—Eczema, pityriasis rosea, psoriasis, ringworm and syphilis must be considered in the differential diagnosis. According to Darier, seborrheic eczema is closely related to eczema, as there are imperceptible gradations between the two affections and as their histologic structure is similar. It differs from eczema, however, in the sharp demarcation of the patches, their persistence without change of type, the tendency at times to form circles, the usual lack of moisture and the ready response to local treatment.

Pityriasis rosea is recognized by the frequent presence of an initial or herald patch, by the sudden onset, location, character of the lesions and self-limited course. The eruption in this disease is seen mostly on the trunk, rarely on the face and practically never on the scalp, which is the favorite site of seborrheic eczema. The lesions of pityriasis rosea show a pinkish, slightly scaly border and wrinkled yellowish-brown center.

Seborrheic eczema may resemble psoriasis so closely that their differentiation cannot be made except from the further course of the disease. In psoriasis, the scales tend to be whiter and more brittle, there is complete absence of moisture and the response to treatment is much slower. Furthermore, psoriasis tends to recur from time to time during life, while seborrheic eczema may be completely cured by proper treatment.

Ringworm is differentiated from seborrheic eczema by the formation of perfect circles, the frequent occurrence of minute vesicles and the presence of the causative fungus.

Congenital syphilis is differentiated by the lean-ham color of the lesions, their frequent presence on the palms and soles and other concomitant signs, including the Wassermann test.

Treatment.—Sulphur is the drug of choice and has more or less specific action. It may be used in 3 to 15 per cent strength in ointment form. For lesions on the glabrous skin, I frequently use an ointment containing 1 gram of salicylic acid and 2 grams of precipitated sulphur in 30 grams of vaselin. Ammoniated mercury ointment in 5 to 10 per cent strength, with or without salicylic acid is also useful. In severe types resembling psoriasis, chrysarobin may be used as in the treatment of the latter disease. For seborrheic eczema of the scalp, frequent shampooing with soap and water is advisable, and in addition sulphur is to be applied daily. Vaselin is not suitable for the scalp and should be replaced by cold cream as a base. The proprietary sulphur cream is a satisfactory preparation for this purpose. The disease may also be successfully treated in many cases by the Roentgen rays, used in fractional weekly doses. I frequently employ this agent in subepilating doses for severe eruptions of the scalp (as in the treatment of psoriasis). I have been unable to see any particular benefit from general tonic or dietetic treatment.

Prognosis.—This is favorable in general, though some cases are refractory to treatment and recurrences may be frequent.

PITYRIASIS ROSEA

Pityriasis rosea is a fairly common disease of adults. It is seen less frequently in children. The original description of pityriasis rosea, by Gibert in 1860, was very brief and included only one type of the disease. Two years later the conception was broadened by Bazin who described the circinate lesions.

Symptoms.—In a bare majority of cases the eruption is preceded by a circinate lesion, known as the herald or primitive patch. This may occur on almost any part of the body, though it is seen most often on the trunk. It is usually larger and more conspicuous than any of the later lesions. At the end of one or two weeks, a general eruption appears suddenly like an exanthem at times accompanied by constitutional symptoms and slight enlargement of some of the lymphatic glands. The eruption as a rule is generalized and symmetrical. It is rarely unilateral. The lesions may be few in number or more often profuse. Their color is pale-red or of a pinkish hue, from which the name of the disease is derived. There are two principal types of lesions (1) solid, round, oval or fusiform macules or maculopapules and (2) circles or medallions. Either of

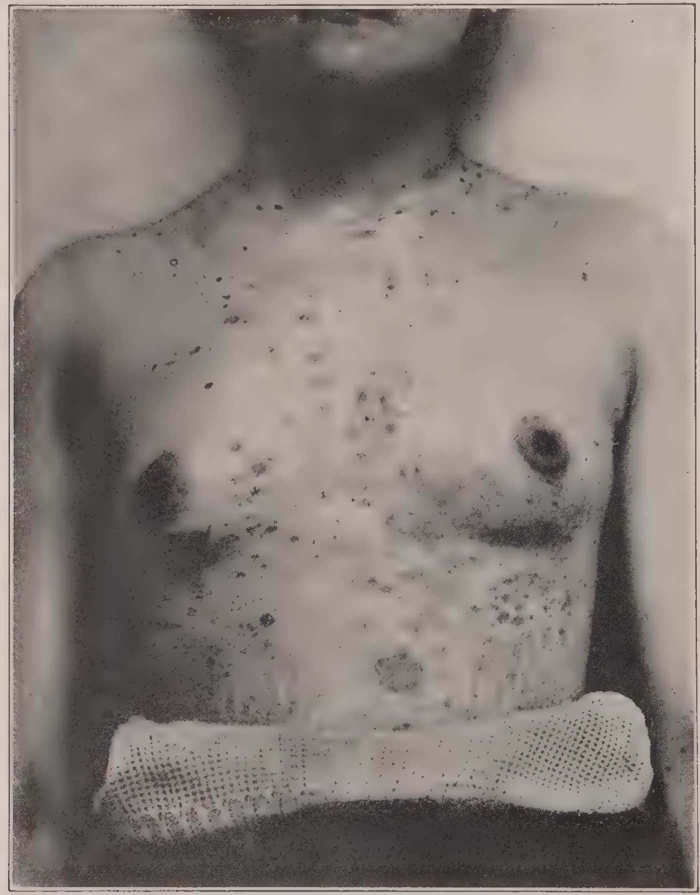

Fig. 49.—Pityriasis Rosea Showing Usual Location on Trunk.
Girl of 14 years.

these types may be present alone or may be seen together. The more common type of solid macule shows a moderate amount of branny scaling, is slightly elevated or may be distinctly papular. According to Klauder, who has made a special study of types of lesions in this disease, papules are not especially rare, particularly in the negro. The circinate lesions are the most striking in appearance. They are round or oval; the size of different coins, and in rare instances may be as large as the palm (gigantic type). The border is pinkish, scaly and slightly elevated, while the center is wrinkled like cigarette paper and spoken of as being fawn colored. On rare occasions the presence of vesicles has been noted.

The eruption is situated chiefly on the covered parts, especially the trunk, and extends in a less profuse manner upon the neck, arms and thighs. In extensive cases the forearms, legs and face may be involved and in rare instances the hands, feet and scalp as well. The mucous membranes are never affected.

Subjective symptoms may be absent or consist of itching which is mild or severe. In a series of eighty cases of my own (incorporated in a study by Highman and Rulison) itching was entirely absent in 50 per cent while in 20 per cent it was severe. There are no constitutional symptoms, except occasionally at the outset.

Pityriasis rosea runs its course in five to ten weeks and disappears without trace. Recurrences are recorded by Towle and others, but are extremely rare.

Etiology and Pathology.—Pityriasis rosea is seen most often in young adults and to a less extent in children. There is a difference of opinion about its frequency in childhood, recent English writers stating that it is more common in children. Graham Little in a series of 146 cases found that 22 per cent occurred between the ages of five and ten and 44 per cent under fifteen. The cause of the disease is still a mystery. A possible infectious agent is suggested by the initial lesion, the acute outbreak, occasional slight constitutional symptoms, adenopathy, the usual lack of recurrences and occasional cases when several members of a family have been affected. Histologically there is a simple inflammation without any characteristic changes.

Diagnosis.—The disease is of considerable importance on account of its close resemblance at times to the macular syphilid. With this exception it is a rather trifling affection and hardly worthy of the amount of study it has occasioned. The type of pityriasis rosea with the classic circinate lesions may be recognized at a glance without difficulty. It is the type which consists of solid macules which may be difficult or almost impossible at times to differentiate from syphilis. In the latter disease the lesions are apt to be smaller and of a more uniform size. The scaling is less, the color darker and there is no itching. Involution of the lesions is not so rapid and there may be other signs of syphilis. The diagnosis at times may depend on the Wassermann test.

Seborrheic eczema may be even more difficult than syphilis to differentiate from pityriasis rosea, though the importance of making the distinction is not so great. The great similarity of the two conditions has been pointed out by my father, G. H. Fox, in a study of pityriasis rosea. The favorite sites of seborrheic eczema are the midsternal and interscapular region, the face and scalp. The lesions are more yellowish than those of pityriasis rosea and may have greasy scales.

Ringworm may be confused with pityriasis rosea when the lesions of the latter are rather circumscribed or few in number. In ringworm the circles are somewhat more sharply defined, they may present tiny vesicles at the border and they are more often seen on the exposed parts, whereas pityriasis rosea favors the covered areas. A microscopic examination would settle the diagnosis. Ringworm may, however, be extensive and closely simulate pityriasis rosea, as in the illustration in Sabouraud's text (*Les Teignes*) of an eruption caused by a faviform trichophyton.

Psoriasis is rarely confused with pityriasis rosea, the scaling being more profuse and silvery, while the distribution, bleeding points and history of recurrence are of assistance in the diagnosis.

Treatment.—The treatment of pityriasis rosea is a simple matter and of much less importance than the diagnosis. As the disease often causes little or no itching, it is not essential that anything more than an antipruritic lotion be prescribed. Although the eruption disappears readily under Roentgen rays, I do not feel justified in using this agent. At the suggestion of L. B. Mount, I tried the Jamieson treatment several years ago and have been well satisfied with the results. This consists in daily baths to which a few teaspoonfuls of Condy's fluid are added, followed by inunctions of a 3 per cent salicylic acid ointment. In the majority of cases, the eruption, when treated in this manner, largely disappears within ten days. Michael recently used ultraviolet light (mercury vapor lamp) successfully in treating a series of fourteen cases. An erythema followed by desquamation was produced, the author ascribing the favorable effects to the desquamation and not to any specific effect on the cause of the disease.

Prognosis.—The disease is self-limited and of comparatively short duration. Recurrence is extremely rare.

LICHENIFICATION

Lichenification may be either primary or secondary, the latter following many itchy dermatoses such as eczema, prurigo and dermatitis herpetiformis. Primary lichenification may be either circumscribed or diffuse. Various names have been given to this affection including lichen simplex chronicus (Vidal), pruritus with lichenification (Brocq) and, more recently, neurodermite (Brocq and Jacquet).

Symptoms.—Primary lichenification begins as intermittent and intense itching without any visible changes in the skin at the outset. From continued scratching, reddish papules appear, which coalesce and form infiltrated and somewhat scaly patches. The characteristic appearance of the disease is shown by rectangular or lozenge-shaped, tiny areas, formed by intersecting lines, giving the skin a mosaic-like appearance. At the border of the patches the papules are more or less discrete, becoming more closely aggregated toward the center which shows the greatest amount of thickening and scaling. Circumscribed lesions are round, oval or angular in shape and vary in size from a large coin to that of the palm or more. Favorite sites are the nape of the neck, flexor surface and inner aspect of the thighs, though other regions may be affected and at times the disease may be generalized. There may be one, or more often several patches, which after attaining a certain size, remain for long periods or at times disappear spontaneously to reappear in new regions. The itching is always intense and may interfere with sleep, and the lesions do not show a tendency to moisture as in eczema. The disease may occur in young children who are apt to be pale, thin and of a neurotic type. In such cases the eruption may be very extensive.

Etiology.—The disease occurs more often in girls than in boys. The cause is unknown and in spite of its being frequently called neurodermatitis, a neuropathic cause is only surmised.

Diagnosis.—Papular eczema and lichen planus must be considered in the diagnosis. In lichenification there is no tendency to oozing as in eczema and the eruption which is preceded by itching shows rectangular mosaic-like lesions. The affection may occur as a secondary change in eczema. In lichen planus the papules are more sharply defined and the patches have a distinctly violaceous color. Their frequent location on the front of the wrist, about the ankles and in the mouth is also strongly suggestive of this disease.

Treatment.—Treatment is similar to that of the chronic dry forms of eczema and includes local stimulating remedies (especially tar), roentgenotherapy and internal administration of arsenic.

Prognosis.—This is good as far as the eventual disappearance of the eruption is concerned, though its course may be protracted for years.

LICHEN PLANUS

The term lichen (from the Greek word meaning moss) was formerly used as a general name for all papular diseases, though its use is now restricted to lichen planus and a few other conditions. Lichen planus, first described by Erasmus Wilson, in 1869, is rare in childhood.

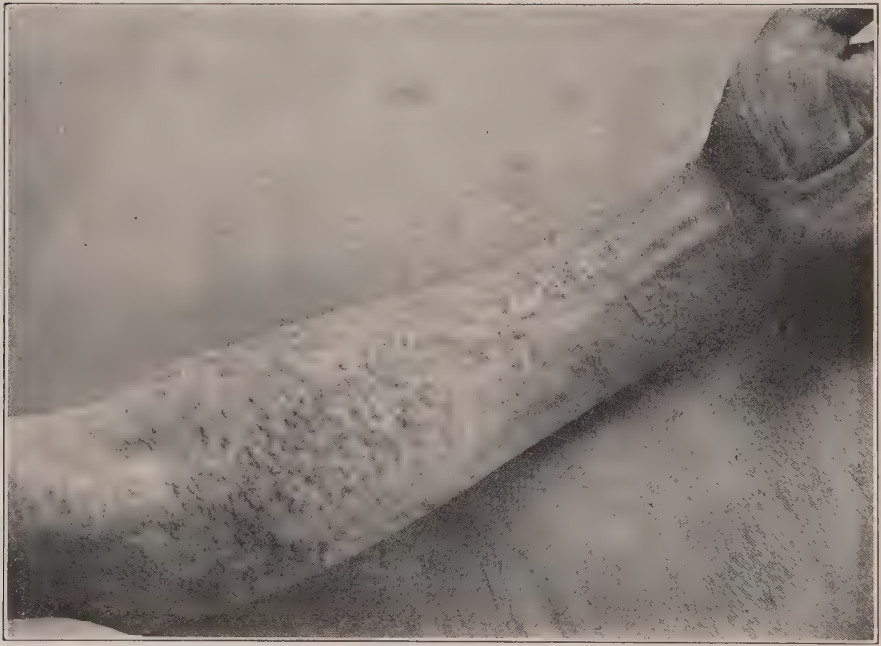

FIG. 50.—LICHEN PLANUS.
Note flat, shiny, pinhead papules, some discrete and others coalescing.

Symptoms.—The onset may be sudden or gradual. In the former case it is sometimes accompanied by constitutional symptoms and the eruption is generalized, symmetrical and profuse. This type is relatively more common in children. The more usual type has a gradual onset and may be somewhat localized. New lesions continue to appear for a few months.

The essential lesion is a characteristic pinhead papule, which is flat, shiny, reddish or purplish and has an angular or polygonal base and steep sides. The surface of the papule is smooth or it has an adherent fine scale. A central depression corresponding to the opening of a sweat pore is often seen. Many of the lesions are discrete, while others coalesce to form scaly patches which show a characteristic violaceous color. This constitutes one of the few color changes in skin diseases which are of diagnostic value. The papules may show whitish puncta and streaks like radiations of a star. This is best demonstrated by applying anilin oil, which makes the horny layer transparent. The patches are often divided in lozenge-shaped tiny areas (cross hatching). The favorite sites are the flexor surface of the wrists and forearms, the internal aspect of the thighs and the ankles. Lichen planus may also be seen on the neck and lumbar region, but is rare on the face and extremely so on the palms, soles and scalp. According to Kiess, it is somewhat more frequent on the face in children. Lesions of the mucous membrane of the mouth, especially the cheeks and tongue, are frequent and may precede those of the skin. The eruption may also appear on the genitals of both sexes. According to Kiess the involvement of the mucous membrane of the mouth and the genitals is somewhat less frequent in children than in adults. In the mouth the eruption is superficial and consists of pin point whitish spots, some of which are discrete. The majority, however, coalesce to form solid or reticulated and at times annular patches. Itching is usually present and may be severe, especially in the acute cases. In others it is practically absent.

After attaining its maximum development, the process remains stationary for a few months and then gradually undergoes involution within eight to twelve months from the time of onset. Disappearance of the lesions is followed by pigmentation which is characteristic and which remains for a few weeks or months. Eventually no trace of the disease can be detected and there is only a slight tendency towards its recurrence.

Varieties.—In addition to the classic type there are numerous variations in the shape and arrangement of the lesions. The papules may coalesce and form rings, as in the case of a nine-year-old girl reported by Kingsbury, or they may form linear bands which at times follow the course of a nerve. The latter type was found by Graham Little to be more common in children. Vesicles and bullæ are occasionally present and papules may appear in a delicate line, following scratching or other traumatism. Atrophic types have received different names, but all of them represent a cicatricial central depression of the papules, merging with neighboring lesions to form small white patches. This rare form of the disease (lichen planus atrophicus) occurs chiefly on the neck, breast and abdomen and causes permanent scarring. The hypertrophic types and so-called lichen obtusus are seen only in adults.

Etiology and Pathology.—Lichen planus is rare in childhood as shown by a recent statistical study by Kiess, who collected a total of eighty-nine cases. He found that the disease had been observed without any special difference at all ages, from one to fifteen. No congenital cases were recorded. Boys were somewhat more frequently affected than girls. MacLeod expresses doubt about the diagnosis in infantile cases, suggesting that there may have been confusion with papular urticaria, seborrheic eczema or miliaria. I feel that the clinical diagnosis in infancy is difficult. It is rarely feasible to confirm this by performing a biopsy, considering the harmless nature of the disease.

The cause of lichen planus is unknown. The histologic changes are characteristic and consist of keratosis, unevenly thickened granular layer, broad papillæ and bandlike lymphocytic infiltration in the cutis.

Diagnosis.—The diagnosis in older children is usually easy from the character of the papules, the violaceous color and distribution of the eruption. In young children and infants, the differentiation from papular urticaria may be difficult or impossible. In papular urticaria there is an initial stage of wheal formation and there are marked excoriations which are rarely seen in lichen planus. The guttate or punctate lesions of psoriasis have more profuse scaling and show characteristic bleeding points.

Treatment.—In my opinion, the Roentgen rays constitute the remedy of choice and are used by me as a routine treatment of this disease. In fact, I do not know of any other local remedy which has the slightest effect on lichen planus, other than to lessen itching. Both arsenic and mercury have been frequently used for internal administration, but the results are slow and often unsatisfactory. Fowler's solution or other arsenical preparations have been much used abroad while mercury in the form of protiodid has found favor in this country (¼ grain, three times daily for adults). Enesol, a proprietary remedy, contains both arsenic and mercury and given intramuscularly once or twice a week seems to be helpful. Ordinary antipruritic lotions may be used for the itching.

Prognosis.—This is favorable, as the eruption usually disappears within a year, leaving temporary pigmentation. Recurrence is uncommon.

Summary of Special Features in Children.—Lichen planus is rare in infants and children. It has been recorded at every age from one to fifteen, no special variation being noted in these different years. It has not been observed at birth. There is some doubt about cases reported in infants, owing to the difficulty in differentiating lichen urticatus. In children the disease is relatively more common on the face and less so on the mucous membranes of the mouth and genitals. The linear types have been claimed to be more common in children than in adults. The onset, appearance and course of the disease do not differ from those in adults. Boys are somewhat more often affected than girls.

LICHEN SPINULOSUS

Under the title lichen pilaris seu spinulosus, Crocker described a rare affection which is seen almost entirely in children. In this country it seems to be particularly rare.

The eruption appears acutely or subacutely, as groups of small red or skin-colored follicular papules, from the summits of which arise fine filiform spines 1 or 2 millimeters in length. The distribution is symmetrical and appears most often on the neck, extensor surface of the arms, the abdomen, buttocks and thighs. It causes little or no itching and when untreated tends to run an indefinite course. Its cause is unknown. The pathologic process is essentially a hyperkeratosis of the follicle with absence of, or very slight, perifollicular inflammation. Similar spiny formations are seen at times in lichen scrofulosorum, lichen planus and the follicular syphilid. Darier says that this condition is not the pathognomonic sign of a single and always identical affection.

Treatment by alkaline soaps and salicylic acid ointment is said to effect a cure without difficulty, but in a case under my care, shown before the New York Dermatological Society, vigorous treatment of this kind caused only a moderate improvement.

PITYRIASIS RUBRA PILARIS

The disease originally described by Hebra as lichen ruber was identical with the one described later by Kaposi as lichen acuminatus except that most of Hebra's cases terminated fatally while those of Kaposi did not. At an international congress of dermatology, cases of lichen ruber acuminatus were agreed to be identical with pityriasis rubra pilaris, the name given the disease by Besnier. According to present-day custom, we will use the latter rather cumbersome name for this rare affection which begins at times in childhood.

Symptoms.—The onset is gradual as a rule and is not accompanied by constitutional disturbance. The characteristic lesion is a conical, follicular, pinhead sized papule, capped by a scale and showing usually one or more atrophic lanugo hairs. The color is some shade of red. The papules tend to be closely aggregated and present a rough surface suggesting a nutmeg grater. By coalescence, they form patches of varying size which are often extensive. In such cases, small areas of normal skin with sharply defined borders may be seen. In rare instances, the eruption is universal, every inch of the cutaneous surface being involved. Characteristic thickening of the skin is seen on the palms and soles which often causes fissures. On the scalp and face there may be whitish desquamation but no papules. Ectropion is present at times. An almost pathognomonic appearance is presented by small blackish plugs at the site of the hair-follicles on the back of the first and second phalanges. This was first described by Devergie as pityriasis pilaris. The eruption is seen especially

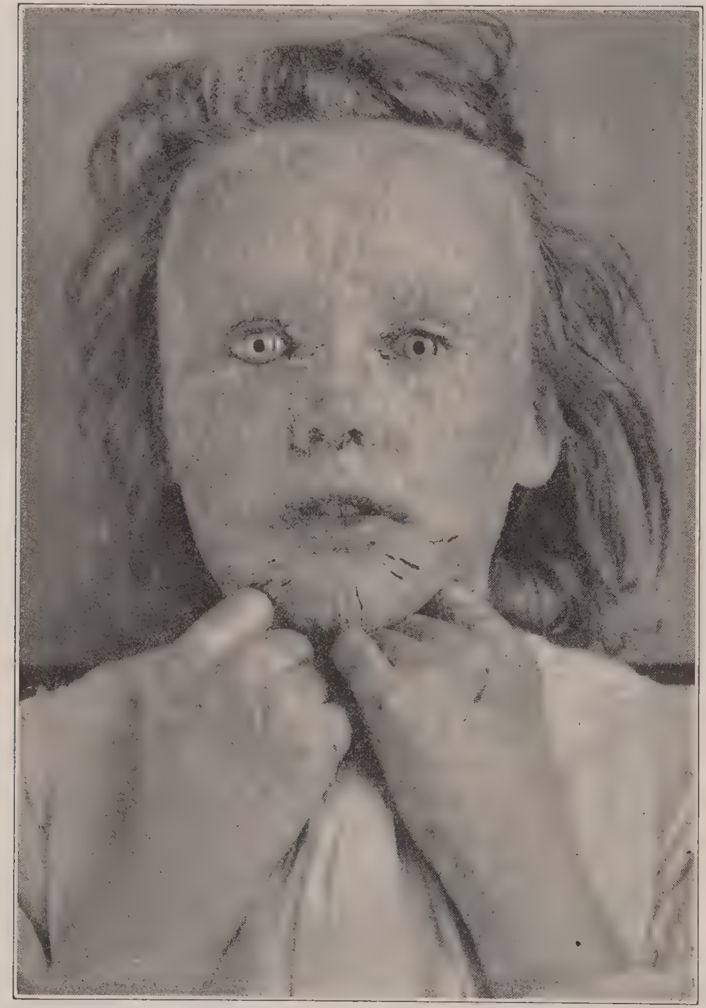

Fig. 51.—Pityriasis Rubra Pilaris of Almost Universal Type.

on the trunk and the extensor surface of the elbows and knees. On the latter sites the appearance of psoriasis is closely simulated. There may be dystrophic changes in the nails. The eruption is markedly symmetrical and always dry, neither vesicles nor pustules being present.

Subjective symptoms are mild and consist of a feeling of tenseness, little or no itching being present. Constitutional symptoms are also lacking in the great majority of cases. The course of the disease is extremely chronic and capricious and is marked by periods of exacerbation and remission. In a few cases there has been a fatal termination.

Etiology and Pathology.—Pityriasis rubra pilaris is rare and may begin in childhood or more frequently in adolescence or early adult life. Whitehouse has reported a case in an infant of one year. The disease appears to be more common in males. Familial cases have been recorded by deBeurmann, Bith and Henyer (two brothers and two sisters) and by Zeisler (father and three children). The cause of the disease is unknown. Histologically the papules show follicular hyperkeratosis and thickening of the entire skin with simple inflammatory changes in the cutis. There is not enough evidence to prove a relationship to tuberculosis, which was suggested by Milian.

Diagnosis.—The diagnosis of pityriasis rubra pilaris may be easy or at times difficult. The characteristic features are the acuminate follicular papules on favorite sites, the patches with fine adherent scales, the branny whitish scaling of the scalp and face and the thickening of the palms and soles. When only the papules are present, the disease may be confused with keratosis pilaris. The latter, however, is non-inflammatory and is confined to the extensor surface of the extremities. Lichen planus is recognized by the shiny, flat, polygonal papules, the violaceous color, the presence of itching and absence as a rule of lesions on the face and palms. When the disease consists of scaly patches, a striking resemblance to psoriasis may be presented as in the accompanying illustration (see Fig. 52). In psoriasis the scales are silvery white, loosely attached; bleeding points may be elicited; the patches form by peripheral extension, and the disease is rare on the face, palms and soles. When the process is universal, it becomes impossible to distinguish from dermatitis exfoliativa, universal psoriasis or eczema.

Treatment.—There is no specific remedy for this disease. I agree with Pusey in saying "it is not established that treatment has any effect upon its course." Arsenic, mercury, pilocarpin and thyroid extract have all been tried. In a case under my father's observation for many years, a long remission of fourteen years followed residence at the seashore and an out-of-door life. Thyroid medication is recommended by Crocker, Zeisler, Levin and Smith. Local treatment consists chiefly of baths and emollients. A 3 per cent salicylic acid in oil or vaselin is often used to lessen scaling. Frequent shampooing and the use of salicylated oil for the scalp are acceptable. Wearing rubber gloves lessens the stiffness of the hyperkeratotic palms. It is advisable to be cautious with strong remedies owing to the possibility of aggravating the disease and causing it to become universal.

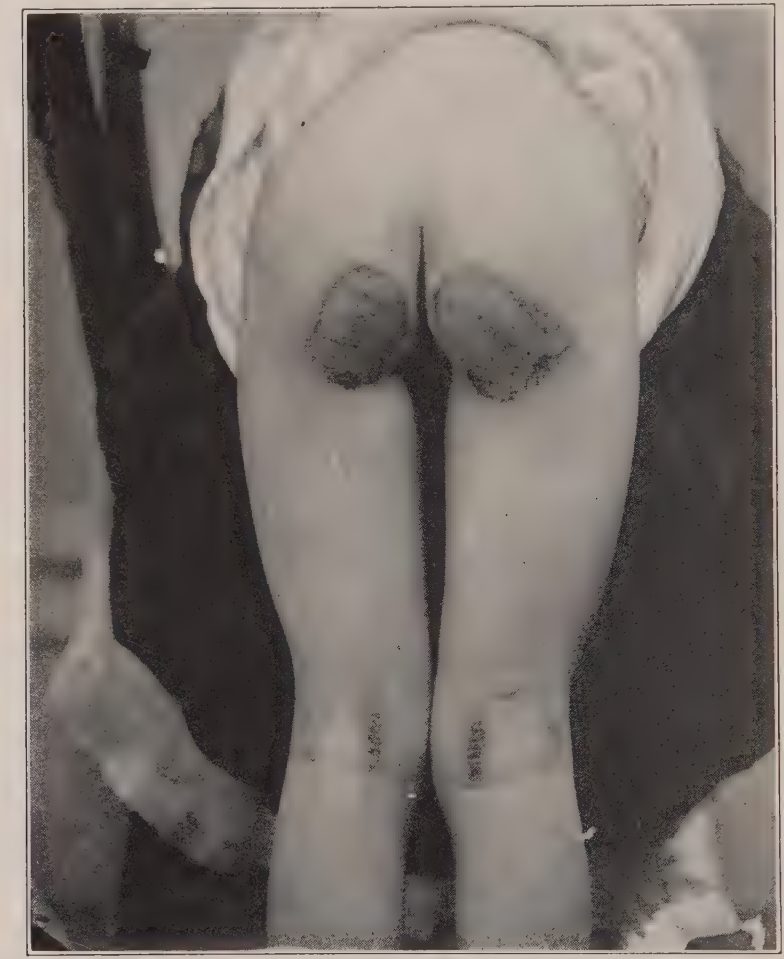

Fig. 52.—Pityriasis Rubra Pilaris.

Prognosis.—This is good as to life in the cases observed in this country. The disease is chronic and capricious in its course and recurrence is frequent.

BIBLIOGRAPHY

PSORIASIS

ALDERSON, H. E. Heliotherapy in Psoriasis. Arch. Dermat. & Syph., Chicago, 1923, 8:79.

ENGMAN, M. F. A Psoriasis Family Tree. J. Cutan. Dis., Chicago, 1913, 13:559.

FOX, H. Autogenous Serum in the Treatment of Psoriasis. J. Am. M. Ass., Chicago, 1914, 63:2190.

——— On the Therapeutic Testing of Dermatological Remedies. J. Cutan. Dis., Chicago, 1909, 27:192.

GOTTHEIL, W. S., and SATENSTEIN, D. L. Autoserum Injections in Certain Obstinate Dermatoses. Med. Rec., New York, 1914, 85:620.

HAZEN, H. H. Personal Observations upon Skin Diseases in the American Negro. J. Cutan. Dis., Chicago, 1914, 32:705.

MALONEY, E. R. The Treatment of Psoriasis with Intravenous Injections of Sodium Salicylate. Arch. Dermat. & Syph., Chicago, 1924, 9:752.

NIELSON, L. Klinische und etiologische Untersuchungen über Psoriasis. Monatschr. f. Dermat. u. Syph., 1892, 15:317.

OBERLÄNDER, W. Ueber Psoriasis Vulgaris des Kindesalters. Mang. Diss. Leipzig, 1923.

PAROUNAGIAN, M. B. Psoriasis in a Full Blooded Negro. Arch. Dermat. & Syph., Chicago, 1926, 13:106.

POLLITZER, S. The Ætiology of Psoriasis. J. Cutan. Dis., Chicago, 1909, 27:483.

RILLE, J. H. Le Psoriasis vulgare chez le nourrisson et l'enfant. J. de mal. cutan. et syph., Paris, 1899, 11:385.

SCHAMBERG, J. F. The Known and Unknown about Psoriasis. J. Am. M. Ass., Chicago, 1924, 83:1211.

VAN ALSTYNE, E. V. Non-Specific Protein Treatment of Psoriasis. Med. Rec., New York, 1917, 92:538.

PARAPSORIASIS

DAVIS, H. Case report. Brit. J. Dermat., London, 1921, 33:64.

PITYRIASIS CAPITIS

JACKSON, G. T., and MCMURTRY, C. W. Diseases of the Hair, Philadelphia, Lea & Febiger, 1912, p. 298.

PITYRIASIS ROSEA

FOX, G. H. A Broader View of Pityriasis Rosea. J. Am. M. Ass., Chicago, 1912, 59:493.

HIGHMAN, W. J., and RULISON, R. H. Pityriasis Rosea, A Few Simple Facts. Arch. Dermat. & Syph., Chicago, 1923, 7:163.

Klauder, J. V. Pityriasis Rosea. With Particular Reference to its Unusual Manifestations. J. Am. M. Ass., Chicago, 1924, 82: 178.

Little, G. Discussion on Pityriasis Rosea. Brit. J. Dermat., London, 1914, 26: 117.

Michael, J. The Treatment of Pityriasis Rosea with Ultra Violet Light. South. M. J., Nashville, Tenn., 1925, 18.: 519.

Towle, H. P. Pityriasis Rosea. J. Cutan. Dis., Chicago, 1904, 22: 177.

Lichen Planus

Kiess, O. Ueber Lichen Ruber Planus im Kindesalter. Dermat. Ztschr.„ Berlin, 1921, 33: 140.

Little, G. Lichen Planus. J. Cutan. Dis., Chicago, 1919, 37: 639.

Pityriasis Rubra Pilaris

De Beurmann, Bith and Henyer. Pityriasis rubra pilaire familial. Ann. de dermat. et syph., Paris, 1910, 1: 609.

Levin, O. L., and Smith, E. B. Pityriasis Rubra Pilaris. Arch. Dermat. & Syph., Chicago, 1921, 3: 40.

Whitehouse, H. H. Case report. J. Cutan. Dis, New York, 1912, 30: 482.

Zeisler, E. P. Pityriasis Rubra Pilaris. Familial Type. Arch. Dermat. & Syph., Chicago, 1923, 7: 195.

Eczema Seborrheicum

MacLeod, J. M. H. Cultures, Preparations and Cases Illustrating Morphology, Cultural Characteristics and Pathogenicity of the Spore of Malassez. Proc. Roy. Soc. Med., London, 1928, 21: 1073.

CHAPTER IX

DISEASES DUE TO ANIMAL PARASITES

GENERAL CONSIDERATIONS

The important part played by certain insects in the transmission of human disease is now generally appreciated. The relationship of mosquitoes to malaria and yellow fever, of fleas to bubonic plague or of lice to typhus does not concern us at present. It is our purpose to discuss the rather prosaic subject of the local effects produced in the skin by various animal parasites. The majority of such parasites are classed as arthropods (jointed feet) and include certain *insects, mites* and *ticks*. In addition a few diseases of the skin are caused by *worms*. It will be convenient to divide the parasites into three groups, including (1) those which attack the skin from without, either in search of food or as a means of defense; (2) those which burrow partly or completely into the skin from without to obtain food; and (3) certain worms which reach the skin after first infesting the viscera.

The arthropoda include the true *insects* or hexapoda, the arachnida (ticks, mites, scorpions, spiders) and of less importance the chilopoda (centipedes). Insects form a large class and are characterized by the adult having six legs (as the name hexapod would imply), a segmented body consisting of head, thorax and abdomen, a single pair of antennæ, tracheal breathing and distinct sexes. The majority have two pair of wings. Some are wingless, such as lice. Most insects undergo a complete metamorphosis through the stages of the ovum, larva, pupa and imago. In some this is incomplete. All arise from the ova. There are four orders of insects which are true parasites of human beings; namely, the siphunculata (lice), hemiptera (bedbugs), diptera (flies, midges, mosquitoes) and siphonaptera (fleas). Other orders including the lepidoptera (moths), hymenoptera (bees, wasps, ants) and coleoptera (beetles) may injure man for purposes of defense but are not strictly parasitic.

The class of arthropods known as arachnida includes two orders of interest to us, acarina (mites and ticks) and araneida (spiders). The acarina are characterized by having neither wings nor antennæ and by the adults usually having four pairs of legs (mites, ticks, scorpions, spiders.)

Worms, which are of dermatological interest, are few in number. The hookworm enters the system through the skin and in so doing causes a dermatitis. Other worms reach the skin after first investing the internal organs. Both cestode and nematode varieties infest the skin.

There are various ways in which insects may exert their poisonous effects on man, which according to Riley and Johannsen are as follows: Piercing or biting forms may inject irritating or poisonous saliva into the wound caused by the mouth parts (lice, fleas, bedbugs). Stinging forms may inject a poison from glands at the caudal end of the abdomen into wounds produced by a specially modified ovipositer, the sting (bees, wasps). Nettling properties may be possessed by the hairs of the insect (brown-tailed moth). Vesicating or poisonous blood-plasma or body fluids exist in many species and occasionally affect man (beetles).

The bites and stings of insects are of similar type, though varying in degree, and consist of an edematous swelling (the wheal) with a central punctum. This central punctum distinguishes lesions due to insect bites from those occurring in other diseases. In many cases it is ephemeral and lasts only a few hours or a day. In others, especially the bites of fleas and bedbugs, a central hemorrhage point remains after the swelling has subsided and may persist for a week or more. The injurious effects of insect bites are due not merely to the traumatism of biting or sucking but to the introduction of poisonous irritants into the wound. There is considerable variation in susceptibility of different persons to their poisonous effects. Only after long exposure is there any appreciable degree of immunity which is not comparable to that which results from bacterial invasion.

The great majority of animal parasites inflict their injury without burrowing into the skin. Some of them attack the skin as adult forms while others reach the skin in the larval state. It is a source of consolation perhaps to read the statement of Riley and Johannsen that of all the myriads of insects and related forms "only a very small number are in the slightest degrees poisonous to man or to the higher animals." Of the parasites which cause cutaneous lesions, the three varieties of human lice and the ordinary itch-mite are by far the most important and will accordingly be considered at some length.

DISEASES DUE TO PARASITES ON THE SKIN

Pediculosis

There are three types of pediculosis in adults which affect the scalp, body and pubic regions respectively. In children we are mainly concerned with the type affecting the scalp. While this is seen in adult women, it is essentially a disease of childhood.

Pediculosis Capitis

Symptoms.—The objective signs of pediculosis capitis are due to scratching caused by the presence of pediculi. This is partly due to the crawling about the scalp but mainly to the injection of an irritating salivary secretion after the insect has inserted its proboscis into the scalp. The results of scratching vary greatly according to the duration of the disease and the individual susceptibility of the patient. In the milder cases (seen in private practice) it may be difficult to find any lice and the only signs may be the presence of ova or "nits" and a few scattered excoriations. The most marked evidence of the disease is seen in the occipital and to a less extent in the parietal region. The affection flourishes particularly in girls with long hair, an argument in favor of the hygienic habit of "bobbing" the hair. In well-marked cases, especially in neglected children, scratching may result in eczematization and pyogenic infection (impetigo). It is often possible to make a diagnosis of pediculosis from the presence of impetiginous crusts, as Jackson and McMurtry state, by feeling the "crusts of large size, scattered over the scalp." There may be an enlargement of the occipital glands which at times are painful and may even suppurate. In severe cases abscesses and ulcerations may lead to some permanent loss of hair. In cases of long duration and extreme neglect the hair may become matted together like a braid to form the so-called plica polonica. The general health may also suffer from interference with sleep and secondary infection.

Although the lesions due to scratching are rather characteristic as a rule, the diagnosis is made certain by the presence of the actual lice and their ova. The live pediculi may be seen moving about or more often clinging to the hairs at the point of their emergence from the scalp. The ova or nits are equally diagnostic. These appear as gray, oval-shaped bodies, firmly attached to the hair by a glue-like substance known as chitin, the rounded end of the ovum being directed toward the free end of the hair. There may be one or several ova attached to an individual hair and as these are all deposited close to the scalp, an idea of their age is obtained by their distance from the scalp.

Etiology and Pathology.—Pediculosis capitis is a disease of world-wide distribution affecting girls more frequently than boys. It is seen mostly among poor, uncleanly and neglected children. Any young girl may, however, become infested with head-lice, in spite of careful personal hygiene and cleanliness. The disease is rarely encountered in infants, due partly to their paucity of hair and partly to the greater care which is bestowed upon them.

That there is relative freedom from head-lice among negro children there can be no doubt. In my statistical study of skin diseases in the negro, the disease was found to be ten times as frequent in white as in negro children, while Hazen's figures showed the proportion to be more than twenty to one. In an examination of over twenty-eight thousand school children in New York City, pediculosis capitis was found to be thirty-three times as common in white as in negro children. The Bulletin of the Health Department which quotes these figures states that the disease in negroes occurred more frequently in those with the softer or straighter varieties of hair than in those whose hair was "kinky." It has been suggested that the infrequency of the disease in negro children

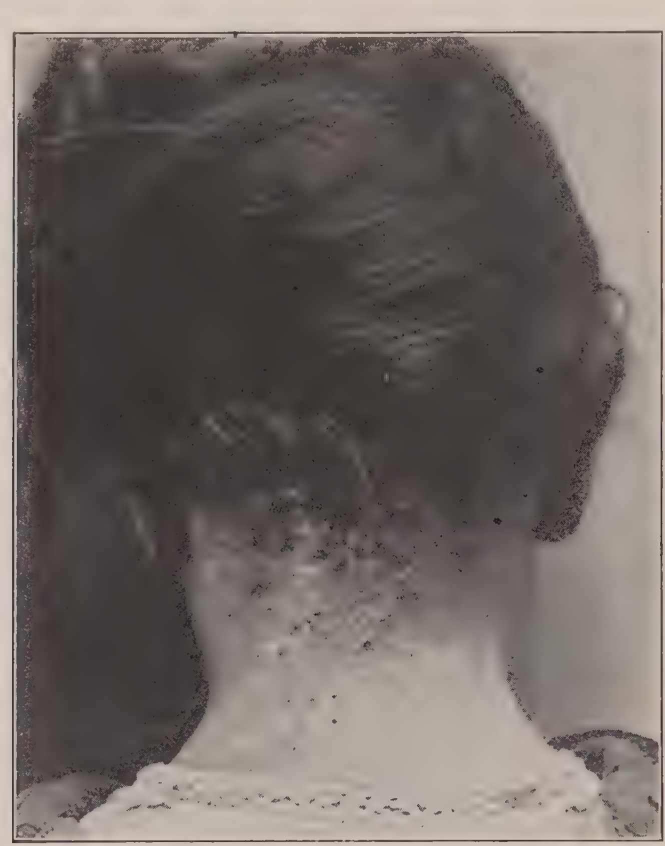

Fig. 53.—Pediculosis Capitis.
Note excoriations and crusts on nape of neck, a characteristic site.

is due to the excessive amount of combing to which they are subjected, though I think it is quite possible that the characteristic odor of the sebaceous glands in these individuals may not be entirely agreeable to the pediculi.

A frequent source of pediculosis capitis is the school, especially from overcrowding and promiscuous interchange of hats. In some pauper asylums the disease is practically endemic.

The *Pediculus capitis* is an insect, which has no wings and does not undergo any metamorphosis (stage of larva, pupa, etc.), the completely formed insect being hatched from the egg. It has the usual head, thorax and abdomen of insects with three pairs of strong legs ending in powerful claws (see Fig. 54). It has no jaws with which to bite but obtains its food in the form of blood by inserting its proboscis into the follicles or sweat pores. The insect averages about 2 millimeters in length and is about half as broad as it is long, the male being smaller than the female. It has a dirty grayish color, being somewhat reddish when distended with blood. Its color is said to vary according to the racial color of its host. It is a most prolific insect, becoming capable of reproduction in less than three weeks. It has been calculated that theoretically at least a pair of lice could produce a family of eight thousand descendants in eight weeks.

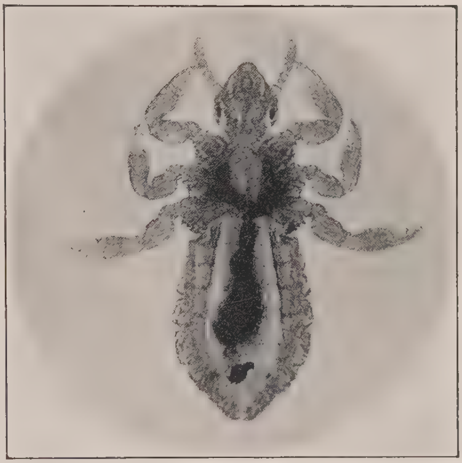

FIG. 54.—PEDICULUS CAPITIS (HEAD-LOUSE).

Diagnosis.—In mild cases when the scratching has been slight and no pediculi are to be seen, the diagnosis must be made from the presence of ova. These may be mistaken for scales of pityriasis (dandruff) but are differentiated from the latter by the firmness with which they adhere to the hairs. It is difficult to detach the ova without considerable force though it is possible to slide them up and down upon the hair. While eczema and impetigo must be differentiated in some cases from pediculosis it should not be forgotten that these conditions are often the effect of scratching caused by pediculosis. In other words, they are part of the disease and disappear when the cause is removed. The presence of eczema or impetigo in the occipital region or nape of the neck, especially in girls with long hair, is suggestive of pediculosis. Ringworm, with its areas of patchy baldness, would seldom be mistaken for pediculosis though it is not uncommon in untreated and neglected children for the two diseases to coexist.

Treatment.—In the management of pediculosis capitis it is not essential that the hair should be cut short but this is desirable if possible. A time-honored method which is efficient, though not particularly elegant, consists of the application of crude petroleum to the scalp for twelve to twenty-four hours. To lessen the inflammability, the petroleum (kerosene oil) may be diluted with equal parts of olive oil. The oil is then removed by shampooing the scalp with soap and water. An efficient and agreeable remedy consists of 10 per cent balsam of Peru in alcohol. The removal of the ova requires both time and patience and is best accomplished by pulling on the hairs with a cloth moistened with vinegar and by the use of a fine tooth comb. Innumerable other remedies have been used to kill lice, one of the best known being the tincture of delphinium. Strong solutions of bichlorid of mercury, while effective, are not suitable for general use in children. When there is well-marked eczematization or impetigo it is advisable to use an ointment such as ammoniated mercury in 3 to 5 per cent strength. To prevent recurrence and as a protection to other children, the patient's headgear, combs and brushes should be thoroughly disinfected.

Prognosis.—This is excellent when the disease is recognized and properly treated. Patience is required to get rid of all of the ova. If untreated, pediculosis of the scalp may last indefinitely.

Pediculosis Corporis

Pediculosis corporis is seen mostly in elderly men of the vagabond type and is rare in children. The disease is essentially one of the clothing, in the seams of which the pediculi live and wander upon the skin to obtain their nourishment. The itching caused by bites of body-lice is the most severe of any known skin disease. As a result of scratching there are both punctate and linear excoriations, the latter appearing often in characteristic parallel lines. The favorite sites of the scratch marks are the shoulders and the waist line, situations in which the clothing is in close contact with the body. The severe cases in which deep brownish pigmentation occurs as a result of prolonged scratching are not seen in children.

The presence of body-lice may be suspected from the location and character of the scratch marks and is confirmed by finding the lice in the clothing. The body-louse has the same shape as the head-louse but is larger.

Treatment consists in complete change of clothing and in cleanliness. Soothing lotions or ointments may be used, though the disease disappears rapidly when the cause is removed. Infested underclothing should be thoroughly boiled and outer garments pressed with a hot iron, especially along the seams.

Pediculosis Pubis

This does not occur before puberty though pubic lice are occasionally seen on the eyelashes of uncleanly and neglected children. Treatment consists in removing the pediculi by thumb forceps, after which yellow oxid of mercury ointment is applied.

Bedbugs

The ordinary bedbug, the common species of which is the *Cimex lectularius,* is of world-wide distribution and may infest persons of both sexes and all ages. It lives in cracks and crevices of beds and furniture, cushions, mattresses or behind loose wall paper and wanders chiefly at night to obtain blood from its victims. The insect may be carried on the clothing to the home from hotels, boats or trains or it may migrate from one apartment or house to another. It is peculiarly long lived and when man is not available may subsist upon small rodents such as mice or bats. Bedbugs have a peculiarly disagreeable odor, due to a volatile, oily liquid secreted by so called stink glands on the inner side of the mesosternum. It is especially noticeable when the insects are crushed. The eggs, which are laid in available crevices, are white, oval masses about a millimeter in length. After hatching, the adult form is reached in about seven weeks.

The effects of bedbug bites vary greatly in different individuals, some persons being hardly aware of them. The lesions are ephemeral wheals with central puncta, often followed by petechial spots, lasting a week or more after the disappearance of the wheal. They are seen most frequently on the feet or ankles but also on the legs, buttocks, neck and shoulders. They are, as a rule, comparatively few in number and may be somewhat grouped, but do not show as much symmetry as in urticaria from internal causes. They usually cause more or less severe itching and burning and may show secondary effects of scratching but nothing to compare with that following infestation with lice.

The treatment of bedbug bites consists of ordinary soothing lotions and is as simple as the disinfection of a room or house is difficult. For the latter purpose gasoline may be sprayed in cracks and crevices of furniture but where the vermin are numerous extensive general fumigation with sulphur or hydrocyanic acid may be necessary.

Fleas

Of the four hundred odd species of fleas, there are half a dozen which attack human beings. The species which is a special enemy of mankind is the *Pulex irritans,* apparently much more common in certain parts of Europe than in the United States, though fleas are world-wide in their distribution. In the eastern United States at least the species which are most apt to infest houses and prey upon man are the common dog and cat fleas (*Ctenocephalus canis* and *felis*). Fleas are wingless, blood-sucking insects with laterally compressed bodies and long legs with five jointed tarsi. Their extraordinary powers of jumping are well known. The eggs are deposited by the human flea in cracks and crevices in the floor and also upon the clothing. Eggs of animal fleas are loosely deposited on the fur of their host and readily fall to the ground.

Flea bites are characterized by lenticular, reddish spots with central hemorrhagic puncta. The former disappear in a few hours while the latter remain a few days. In children or adults with sensitive skin there is apt to be an initial wheal in place of the erythematous spot which is ephemeral, but may be followed by a papule lasting a few days. Flea bites are very itchy, due largely to the introduction by the insect of an irritating fluid. There is great difference in individual susceptibility to flea bites and it also seems that these insects have a special preference for certain individuals.

The treatment of flea bites consists of the application of alkaline soothing lotions. For those who are especially susceptible, bags of pyrethrum powder may be worn under the clothing and the same powder may be sprinkled between the bed sheets. When the fleas are of the dog or cat species, it becomes necessary to keep these animals out of the house or relieve them of their pests by various insect powders or soaps. Badly infested floors may be treated by flake naphthalene as suggested by Skinner, using five pounds of this inexpensive remedy, scattering it over the floor and closing the room for twenty-four hours.

Ticks

Thicks (*Ixodoidea*) belong to the order Acarina, which includes the mites. They are the largest example of this order. There are various species which infest some of the higher animals and may attack man.

The female tick inserts the proboscis into the skin and sucks the blood until it is several times its normal size and then it either falls off or remains in the same position for a day or more. Its appearance may be mistaken for a small pedunculated tumor. The beak has recurved hooklets so that it cannot be forcibly removed without detaching part of the head and so causing an annoying inflammation. The tick may be easily made to withdraw from the skin by a drop of turpentine, gasoline or oil or a less elegant method, a drop of tobacco juice. Tick bites have aroused a great deal of interest through causation by one of their species of Rocky Mountain spotted fever.

Chicken Lice

The chicken louse (*Dermanyssus gallinæ*) or bird mite, a tiny parasite the size of a grain of sand, may cause erythematous or papular dermatitis on the hands of those taking care of birds or poultry.

Grain Itch

Grain itch, or straw itch, is due to infestation with a minute mite, the *Pediculoides ventricosus.* The disease, which in this country was first described by Schamberg, was named by him *Acarodermatitis urticarioides.* The mite is itself a parasite upon the grain moth and wheat straw worm which come in contact with persons handling infested grain or sleeping on infested mattresses. Peculiar features of the mites are the striking difference in appearance of the two sexes and the enormous size of the gravid female, the abdomen being twenty to one hundred times as large as the rest of the body. The parasite does not burrow into the skin as does the itch-mite of scabies.

The symptoms of grain itch appear within twelve to sixteen hours after exposure and consist of a profuse, generalized, intensely itchy eruption, chiefly present on the trunk and to a less extent on the limbs. The face is rarely, and the hands and feet almost never affected. The most characteristic lesion, according to Schamberg, is a wheal with a central pin-point vesicle. This soon becomes turbid and later pustular. At times vesicles may be pea sized and on becoming pustular suggest the picture of variola. In other cases varicella or erythema multiforme are simulated. The intense itching which is worse at night causes the usual lesions which follow scratching. There may be constitutional symptoms which at times are rather severe. The disease disappears spontaneously in three to seven weeks, even when the cause is not removed.

When this is recognized and removed the itching stops quickly and the eruption undergoes involution in a week or so.

Grain itch is differentiated from urticaria by its longer duration, vesiculation, constitutional symptoms and history of contact with grain or straw. The fact that it occurs mostly in adults and causes severe itching serves to prevent confusion with varicella. From scabies it differs in not affecting the hands.

The treatment consists in removing the cause and applying soothing ointments or lotions. Clothes should be disinfected and infested mattresses disinfected or destroyed.

Mosquitoes

The bites of mosquitoes are too well known to need description. At times, however, enormous numbers of bites are seen on the face and hands of infants or young children who have been carelessly exposed, presenting a picture in which the diagnosis may not at once be apparent. The irritating substance injected is said to have the purpose of increasing the flow of blood and retarding coagulation, though this has been questioned by good authority. The application of weak ammonia or moistened soap will quickly allay the disagreeable itching.

Midges

Midges (*Chironomidæ*) are small flies which resemble mosquitoes in appearance and are often mistaken for them. There are many species, the vast majority of which are harmless. A few, however, known as punkies or sand flies are blood-sucking insects and are frequently a pest for man in the mountains or at the seashore.

Black Flies

Black flies (*Simulidæ*) are small, dark insects with a humpback appearance, the species occurring in the South being spoken of as the buffalo gnat, from the similarity to the charging buffalo. This species, in addition to causing enormous damage to cattle, is a great pest to man. The species of the northern United States is the *Simulium venustrum.* the effect of its bite having been studied in detail by Stokes. Black flies travel in swarms, are almost noiseless and attack their victims in a ferocious and persistent manner. They are seen most frequently in June, seldom infest dark places and can be kept from attacking man by smudges. According to Stokes from whom this brief description is quoted, the *Simulium venustrum* causes a painless bite with hemorrhage at the site of puncture. A papulovesicular lesion then develops on an urticarial base, the course of the lesion lasting several days to several weeks. There is intense pruritus, a tendency to grouping of bites and when confluent, the formation of oozing or crusted placques. A local, painful adenopathy usually occurs. Immunity to all except the earliest manifestations may be developed.

Stinging Insects

Stinging insects (*Hymenoptera*) include bees, wasps and hornets. The sting is a modified ovipositor connected with the poison-secreting glands. It consists of a central shaft and a pair of lancets or darts with sharp recurved teeth. The sting of these insects, particularly wasps and hornets, is well known for its intense pain which varies in different individuals, the effect in some lasting a short time while others may suffer from constitutional symptoms for several hours. Death has resulted from bee stings when very numerous and has been known to follow a single sting, probably as a result of anaphylactic shock. The lesions caused by stinging insects are wheals, papules and ecchymoses. Severe edema may follow stings on the eyelids, lips or tongue. Partial immunity may be gradually established. Relief from such stings may be obtained by compresses wrung out in water as hot as can be tolerated. Howard states that a solution of 30 or 40 grains of iodin to an ounce of saponated petroleum gives immediate relief from bee stings and mosquito bites as well.

The majority of *ants* according to Riley and Johannsen "possess developed stings and some of them, especially in the tropics, are very justly feared." "Some of them," they add, "lack the sting but have large poison glands and when they attack the enemy they bring the tip of the abdomen forward and spray the poison in such a way that it is introduced into the wound made by the powerful mandibles."

The bites of *spiders,* scorpions, tarantulas and centipedes may be painful but the more dangerous species whose bites may at times be fatal are found in the tropics and not in the United States.

Brown-Tailed Moth

The annoying and often persistent dermatitis resulting from contact with the brown-tailed moth is the best example of an infestation due to the nettling properties of an insect. The brown-tailed moth (*Porthesia* *chryssorhœa*) was accidently introduced into New England from Holland some years ago. The dermatitis is caused by contact with the caterpillar and less often by the moth or the cocoon. It may even be produced by infested clothing. The eruption is due to the entrance into the epidermis or even the cutis of minute barbed hairs which are chemically rather than merely mechanically irritative. Certain hairs of the caterpillar have been shown to be in anatomical relationship with cells which secrete a poisonous substance. This can be destroyed chemically and by heat without affecting the structure of the hair. When brought in contact with fresh blood upon a slide, the poison hair causes certain changes (crenation, breaking up of rouleaux) which are not caused by the other hairs of the caterpillar or ordinary foreign bodies.

The eruption due to the insect was first described in 1901 by J. C. White and later by Towle and others and its pathology studied by Tyzzer. It is seen most often in May and June and appears on the exposed parts principally as an urticarial or in severe cases, an eczematous eruption, associated with very annoying itching.

DISEASES DUE TO SKIN BURROWING PARASITES

Scabies

Of the diseases due to animal parasites which penetrate the skin from without, scabies is the most important. It is known as the seven years itch or simply "the itch" or frequently by some local geographic name. The name scabies (from the Latin *scabere,* to scratch) is certainly appropriate. The disease is a common one of childhood.

Symptoms.—Scabies is an infestation with the *Acarus scabiei,* a mite which penetrates the horny layer of the epidermis and gives rise to intense itching. The tunnel formed by the acarus is known as a burrow or cuniculus and is pathognomonic of the disease. The majority of the burrows are quickly excoriated by the finger nails and in the average case in adults it is difficult or impossible to find them. In children, however, they are more often seen and are frequently longer and better developed than in adults. The burrow appears as a wavy thread with parallel borders one-eighth to one-quarter of an inch in length. It is of a whitish color in cleanly persons or may be blackish from contact with dirt. The point of entrance of the burrow may be slightly elevated and at its distal end there may be a minute vesicle. The position of the mite at the blind end of the tunnel may be judged at times by the presence of a yellowish shiny spot. If not scratched the burrow shows no signs of inflammation as a rule. At times, however, it may appear as a red, elevated and hard ridge. The burrow may be made more prominent by applying ink and then wiping it off. As a result the entrance of the tunnel appears as a black dot, the fluid being drawn into the interior by capillary attraction. The acarus itself may be lifted out of the burrow with a needle and is then just visible to the naked eye. The entire cuniculus which is superficially situated may be snipped off with a pair of curved scissors and placed under the microscope, showing the mite, eggs, larvæ and feces.

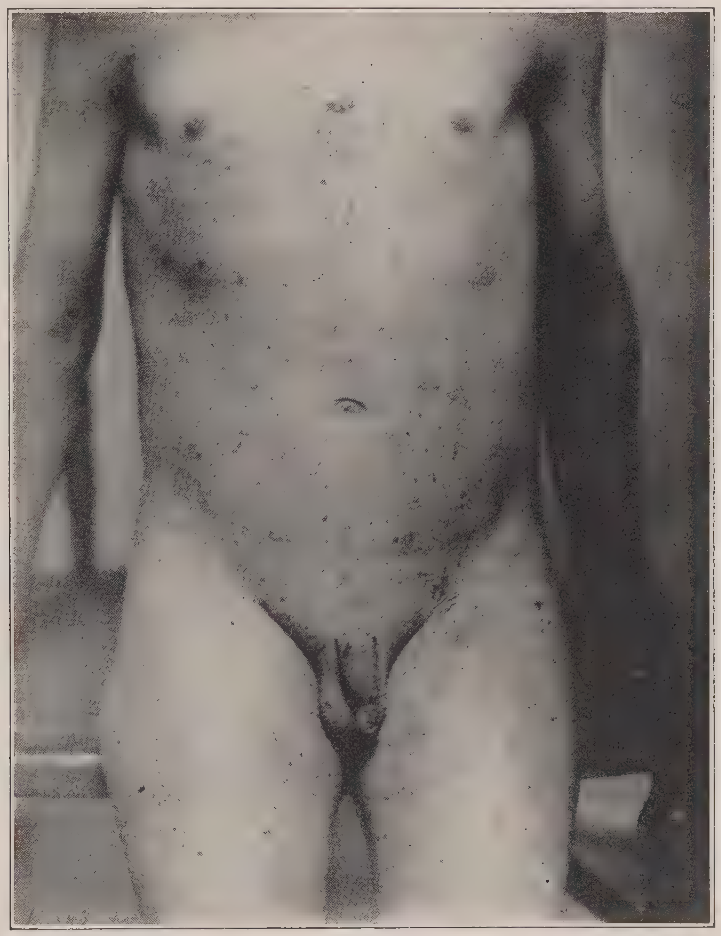

FIG. 55.—SCABIES.

Showing fairly profuse eruption of excoriated papules on abdomen, antero-internal aspect of thighs and penis.

The favorite sites of burrows include the fingers, front of the wrists, the palms, soles and inner border of the feet. The lesions may be present on the feet when they cannot be found in any other locality. Burrows on the face are seen at times in infants though never in adults or in older children.

The burrows of scabies, while pathognomonic, constitute only a minor part of the clinical picture. The striking features are the excoriations and the secondary pyogenic infection on certain sites of predilection. These include the web of the fingers, front of the wrists, anterior axillary folds, breasts, buttocks and genitals (in males). These sites are affected in both adults and children while in the latter, the palms and soles may also be involved. The individual lesions are more or less discrete and there is not much tendency to patchy eczematization from scratching.

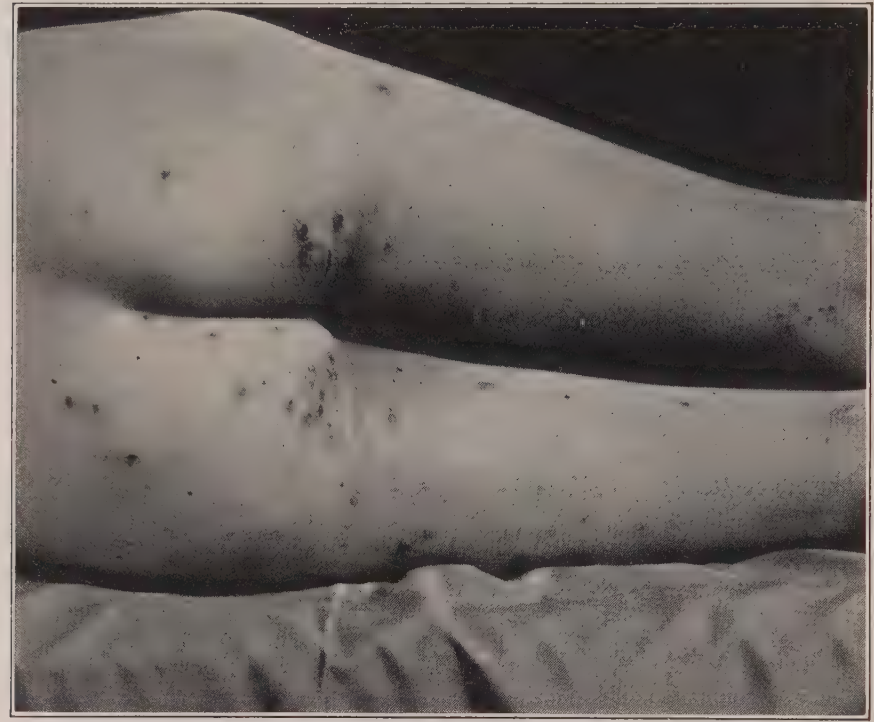

FIG. 56.—SCABIES.
Note excoriated papules on buttocks, a favorite site.

The appearance of scabies in children may differ considerably from that in adults. In general its location is less characteristic. As has been said, the burrows are longer and better developed, the palms and soles are much more often affected, the secondary pustulation is more marked and vesicles and bullæ are more common. Lesions on the face and the generalized eczematous type are seen only in infants.

Itching is always present in scabies and is especially marked at night on getting into a warm bed. Constitutional symptoms are absent. Eosinophilia is frequently present as it is in a number of skin diseases, without being of any practical significance. It was found in 80 per cent of forty-seven cases examined by Schamberg and Strickler. Albuminuria is not uncommon according to Uberfeld (quoted by Sutton).

Scabies may on rare occasions be caused by acari which normally infest some of the lower animals, including the horse, dog, wolf, cat and hog. The course is usually mild, the disease being said to disappear spontaneously in six to eight weeks. The parasites are found on the skin but the burrows are not often seen. Animal scabies may at times be very severe. It is thought by some authorities that the so-called Norwegian scabies is due to parasites from wolves. This condition was first described by Danielsen and Boeck as a disease of lepers, presenting thick crusts all over the body including the face and back, with no burrows but large numbers of acari. Such a condition is almost unknown in this country, though such cases are recorded by Hessler and by Ravogli. Hessler calculated that his patient presented no less than two million itch-mites on the skin.

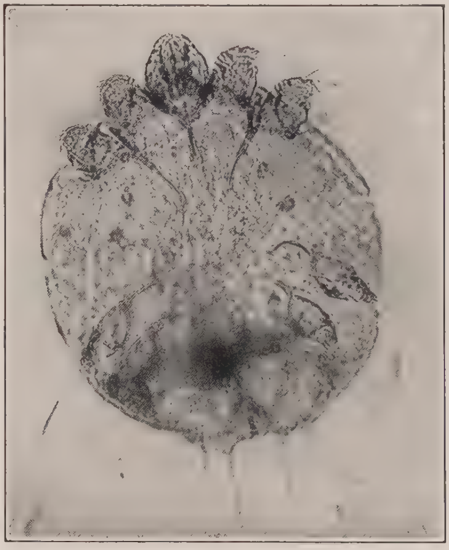

FIG. 57.—ACARUS SCABIEI (ITCH-MITE).

Etiology.—The distribution of scabies is world-wide. It is a common disease both in the tropics and temperate zone and affects all races and all ages without discrimination. While more common in men than in women there is no difference in the sexes in the case of infants and children. Scabies is seen most commonly among those who live in crowded districts and under bad hygienic conditions. It is not confined, however, to the lower strata of society. It is occasionally seen in epidemic form in public institutions. Actual transference of the disease takes place by close contact with another individual suffering from scabies or through infested clothing. Simple contact like handshaking is not sufficient as a rule to transmit the disease. The usual cause is sleeping with an infested individual or sleeping between the same sheets where such a person has very recently slept, it being possible for the acari to remain alive several days away from the human skin. In the case of children, the disease is often transmitted from older members of the family, while scabies in infants is due to infestation of the mother or nurse. It is possible that there is a difference in susceptibility to scabies, Montgomery recording cases of apparent immunity.

Pathology.—The organism causing scabies is known as the *Acarus* or *Sarcoptes scabiei*. The female after impregnation burrows into the middle and lower portions of the horny layer of the epidermis, laying one or two eggs daily. These hatch in about seven days and reach the surface through the opening in the burrow, by piercing the epidermis or through its natural exfoliation. The female acarus is whitish, just visible to the naked eye and oval or almost round in shape. It is provided with four pairs of short, conical legs. The male is about half the size of the female, does not burrow into the skin but lives on the surface in minute folds and clefts of the skin. It dies shortly after copulation.

Diagnosis.—The important features of scabies are the history of contagion, the severe nocturnal itching, excoriated lesions on favorite sites, presence of burrows and mites and rapid response to proper treatment. In many cases, especially in older children, burrows cannot be found and the diagnosis must be based on the other factors mentioned. A long-standing case of scabies may resemble chronic eczema. The itching in the former, however, is more severe as a rule, especially at night. A pustular eruption of the hands and feet in children associated with nocturnal itching is almost surely scabies. Prurigo may be confused with scabies but the location of the latter is different and its response to treatment rapid. Papular urticaria of childhood may be readily confused with scabies as both cause severe nocturnal itching and present scratched papules and tiny vesicles. The diagnosis in such a case may rest on the presence of burrows (especially of the soles and instep) or on the therapeutic test. In the general eczematized type of scabies, seen at times in infants, burrows may be present in almost any situation and the mother or nurse may be found to suffer from the disease. Pediculosis corporis may be confused with scabies though the distribution in the former is rather on the extensor than the flexor surfaces and parallel scratch marks are more in evidence than in scabies. Furthermore this type of pediculosis is rare in children, while scabies is very common.

Treatment.—The treatment of scabies is purely local. Its object is to destroy the itch-mites and then relieve the dermatitis due to scratching and secondary infection. In applying an antiparasitic remedy, care must be taken not to cause, if possible, any further irritation to the skin. Of the various remedies that have been found effective in scabies, sulphur and balsam of Peru are probably the best and are most commonly used. Styrax and beta-naphthol are of value but little used at present. The parasiticide is best used in the form of an ointment though it may also be used as a powder or a vapor. Sulphur baths are also employed by some as an adjuvant to other methods of treatment. While the ordinary sulphur ointment (15 per cent) may be used without ill effect by most adults, it is too harsh for children. Sulphur may be tolerated even in infants if it is not too concentrated (2 to 3 per cent in ointment form). For general practice in children the combination recommended by Pusey is excellent (see Formulary, p. 349). Children may also be treated by 10 to 20 per cent solutions of balsam of Peru in alcohol.

The method of application is fully as important as the choice of the remedy. Before applying the ointment the burrows should be opened as far as possible by vigorous scrubbing with soap and water. The salve is then rubbed into the skin from head to foot in the case of children and also on the face or head of infants if these parts are affected. The inunction is repeated on four successive nights, the patient in the meantime taking no baths, wearing the same underclothing and sleeping between the same sheets. On the fifth day a bath is taken for cleanliness and a change of underwear made. Instead of single applications on four successive nights the treatment may be given night and morning for two or even three days. Great relief from itching is given by the first rub and after the second and third it usually stops entirely. One course of treatment is frequently insufficient and instead of continuing the treatment for a week or so it is better to follow the plan outlined and at the end of a week or ten days to repeat the course of treatment if the itching (especially of the nocturnal variety) recurs. It must always be remembered that the remedy itself may cause a dermatitis, which, however, subsides rapidly when it is discontinued or soothing ointments or lotions applied (calamine lotion or zinc ointment). Continuous overtreatment is about as bad as the disease itself. This was shown in an astonishing manner in a family I once saw consisting of husband, wife, two children and two maids, all of whom had suffered from a severe itchy eruption for a year. A physician who had been consulted at the outset made the correct diagnosis and prescribed sulphur. Due to some misunderstanding the patients were not seen again by the physician and continued daily inunctions with sulphur for an entire year. After stopping the remedy, the eruption, needless to say, soon disappeared.

The rapid method of treatment by sulphur in which a cure is attempted at a single session as at the St. Louis Hospital in Paris, is not suitable for children. Pure balsam of Peru may be painted on the entire body, though the odor, expense and occasional irritation of the remedy may be objectionable. Treatment by powdered (washed) sulphur is recommended by Sherwell. The powder is lightly rubbed on the body and sprinkled between the sheets. This is continued nightly for a week or ten days, when a cure, according to Sherwell, should result. A method of fumigation with sulphur candles is suggested by Bruce, the patient being in an out-of-door cabinet.

In the management of any case of scabies it is always important to see that all other members of the family who are affected should receive treatment. It is also necessary at the conclusion of treatment to disinfect the patient's clothing, cotton and linen fabrics being thoroughly boiled and woolens baked or pressed with a hot iron.

Prognosis.—This is excellent, the disease responding rapidly to treatment. To prevent recurrence, other affected members of the family must also be treated and the clothing disinfected. If untreated, the disease persists indefinitely.

Demodex Folliculorum

The *Demodex* or *Acarus folliculorum* was discovered by Henle in the ceruminous glands, in 1841. This curious parasite is a mite, though it resembles a worm in appearance with its long tail-like projection. It has a head, thorax and abdomen and eight stumpy legs. It is microscopic in size. It is found most abundantly about the nose, cheeks and forehead, particularly in persons with an oily skin or large patulous follicles or in those affected with acne. According to observations of DuBois it was present on the normal skin in all persons over ten years of age. In children between five and ten years of age it was noted in 50 per cent of the cases while in those under five it was not seen. It is generally supposed to be a perfectly harmless parasite, though in a few rare instances, pigmentation of the face or other parts has been thought to be due to the presence of a profusion of these mites. An allied parasite is seen in the dog and is said to be the cause of follicular mange. The parasite may be found by scraping the skin with a blunt instrument, adding a drop of cedar oil and examining with the low power of a microscope. In the sebaceous glands or follicles, it lies with the head pointed downward.

Harvest Mite

The harvest or mower's mite is a larval form of one of the species of trombidium and is sometimes spoken of as a "chigger" or "jigger" though these names are more properly used for the sand flea or *Pulex* *penetrans.* It is a minute but visible brick red mite with oval body and six long legs. It is essentially a parasite on various insects and only incidentally attacks man. It is found especially in July and August in grassy fields and swamps. It burrows for a certain distance in the skin at the mouth of hair-follicles and causes an extremely itchy dermatitis of varying type. The eruption is seen on the ankles and legs and at times on the arms or other parts of the body. Children are especially susceptible according to Duhring (quoted by Ormsby) and may present lesions on the scalp, axillæ and elsewhere. Domestic animals may be attacked and convey the infestation to man. The treatment consists of applications of sulphur or balsam of Peru as used for scabies. Sulphur powder may also be used as a prophylactic by sprinkling it in the socks and underclothes from the thighs down to the feet. Immunity may often be acquired by constant contact with the parasites.

Creeping Eruption

The first case of creeping eruption was described by Robert Lee in 1870 though the causal parasite was not known. Later the affection was named larva migrans by Crocker. It has been found to be due to infestation in some cases by the larva of a fly, supposedly of the genus Gastrophilus. Recently a thorough study has been made of the disease in Florida by Kirby-Smith, Dove and White and in five cases a microscopic parasite, the larva of a nematode worm has been isolated. This the authors have provisionally named *Agamanematodum migrans.* Neither the adult worm nor its host are known.

The disease is manifested by the appearance of narrow, wavy, looped or in places straight, threadlike lesions, which are slightly elevated. They are red at first, later becoming darker. The progression of the parasite causes an advance in the line of an inch or more a day. Usually only one line is present. At times there are periods of quiescence though the process may continue for months or even years. The lesions begin as a rule on the feet, legs, buttocks or hands, but may appear on almost any part of the body. They may be localized or cover an extensive area. Itching varies and may be almost intolerable in extensive cases and as a result of scratching may be responsible for considerable secondary infection.

The disease in this country is confined to some of the southern states, especially Florida where Kirby-Smith in the course of fifteen years has observed over twenty-five hundred cases. The disease is also met with in the Carolinas, Georgia, Alabama, Texas and Oklahoma. Children are more frequently affected than adults, the disease making its appearance especially during the summer months. Some children appear to be much less susceptible than others, particularly negroes. In the majority of cases the disease apparently originates in children when at the seashore in the neighborhood of damp sand. Microscopically the various parasites have been found within the stratum corneum or the rete or between these layers and even at times in the upper cutis.

Treatment by freezing with carbon dioxid snow is often successful. Kirby-Smith recommends a solution of ethyl acetate applied on cotton or gauze placed so that the center of the compress is "well beyond the apparent terminal of the burrow." One application may accomplish the desired result though it may be necessary to repeat it daily for four or five days. In some very resistant cases, effective results were obtained by the use of an extract of derris in ethyl acetate.

Sand Flea

The sand flea or true chigger or chiggo (*Pulex penetrans*) is the most truly parasitic of the fleas which infest man. It is an almost microscopic parasite usually attacking the feet, burrowing into the skin and causing vesicopustules or even abscesses. It is seen chiefly in the tropics.

CUTANEOUS INFESTATION BY WORMS

A few cestode or nematode worms or their larval forms may reach the skin after first being introduced with infested food or drinking water. They are rare, especially in this country, and will be very briefly considered. The larva of the hookworm enters the system through the skin.

Cysticercus cellulosæ cutis is an affection caused by the cysticercus or larva of *Tænia solium* or human tapeworm. The parasite is introduced by ingestion of its eggs in infested food or water. It is seen chiefly where raw pork is eaten as in Germany. The cutaneous lesions appear usually as multiple small round elastic tumors, mostly on the trunk. They cause no local symptoms as a rule but may suppurate, be absorbed or undergo calcification. The diagnosis is easily made by finding hooklets in the aspirated fluid. In appearance the lesions may resemble fibromata or sebaceous cysts.

Echinococcus cysts are rare and are due to the larvæ of the *Tænia echinococcus* or dog tapeworm. They have the appearance of ordinary cysts, covered by normal skin and do not cause any subjective symptoms. After a year or two the larvæ die and the cysts become calcified. The diagnosis is made by finding hooklets. The lesions are associated with echinococcus cysts of other organs.

Oxyuris vermicularis or pin-worm may infest the lower bowel and cause itching and dermatitis of the anogenital region. An enema of bichlorid of mercury 1 : 10,000 and the local application of ammoniated mercury ointment effects a cure.

Trichina spiralis is a nematode worm introduced into the system by eating infested pork and causing the disease known as trichinosis. While not strictly a cutaneous affection it attacks the subcutaneous tissue with resulting edema, especially about the eyes. It causes itching, hyperidrosis and myalgia.

Hookworm (*Ankylostoma duodenale, Necator americanus*) in its larval form causes the so-called "ground itch" or uncinarial dermatitis. It enters the skin of children or adults who walk barefooted on soil polluted by fecal discharges. The eruption appears most often on the toes and feet, as a vesicular dermatitis and subsides in a week or two under treatment similar to that for acute eczema. The general symptoms of hookworm are not within the scope of this work. According to Castellani appropriate general treatment (thymol) should be begun as soon as the dermatitis is recognized. The subject of ground itch has been thoroughly described by C. A. Smith.

BIBLIOGRAPHY

Diseases Due to Animal Parasites

DuBois. Demodex Folliculorum in Healthy Skin. Ann. de dermat. et syph., Paris, 1910, 1 : 188.

Riley, W. A., and Johannsen, O. A. Handbook of Medical Entomyology, Comstock Publishing Company, 1915.

Smith, C. A. The Causative Factor in the Production of the Dermatitis of Ground Itch (Uncinariasis). J. Am. M. Ass., 1906, 47 : 1693.

Smith-Kirby, Dove, W. E., and White, G. F. Creeping Eruption. Arch. Dermat. & Syph., Chicago, 1926, 13 : 137.

Stokes, J. H. A Clinical Pathological and Experimental Study of the Lesion Produced by the Bite of the Black Fly (*Simulium Venustrum*). J. Cutan. Dis., New York, 1914, 32 : 607.

Towle, H. P. The Brown Tail Moth Eruption. Boston M. & S. J., 1905, 152 : 74.

Tyzzer, E. E. Pathology of the Brown Tail Moth Dermatitis. J. Med. Research, Boston, 1907, n.s. 11 : 43.

Pediculosis

Fox, H. Observations on Skin Diseases in the Negro. J. Cutan. Dis., New York, 1908, 26 : 67.

Hazen, H. H. Personal Observations upon Skin Diseases in the American Negro. J. Cutan. Dis., Chicago, 1914, 32 : 705.

Jackson, G. T., and McMurtry, C. W. Diseases of the Hair. Philadelphia, Lea and Febiger, 1912.

Pediculosis Capitis (Head lice) among School Children. Weekly Bull. Dep. Health City New York, 1913, 2 n.s.

Grain Itch

Schamberg, J. F. Grain Itch (Acaro-Dermatitis Urticoides). A Study of a New Disease in This Country. J. Cutan. Dis., New York, 1910, 28:67.

Scabies

Bruce, J. The Treatment of Scabies by Sulphur Fumigation. J. Cutan. Dis., New York, 1918, 36:257.

Montgomery, D. W. Immunity from Scabies. J. Cutan. Dis., New York, 1916, 34:90.

Ravogli, A. Scabies Norwegica. Cincin. Lancet-Clinic, 1898, 41:59.

Schamberg, J. F., and Strickler, A. Report of Eosinophilia in Scabies with a Discussion of Eosinophilia in Various Diseases of the Skin. J. Cutan. Dis., New York, 1912, 30:53.

Sherwell, S. Remarks on the Treatment of Scabies. J. Cutan. Dis., New York, 1899, 17:494.

CHAPTER X

DISEASES DUE TO FUNGI

Diseases of the skin due to infection by fungi are numerous. With many of these we are not at present concerned as they are largely confined to tropical climates. There are, however, two important fungous diseases of the skin which are present in this country and which are essentially affections of childhood, namely, ringworm and favus. As they are contagious, widely distributed and often chronic and difficult to cure, their importance is great. Ringworm and favus are essentially local diseases of the skin, causing no constitutional symptoms, if the rare cases of generalized favus are excepted, in which even a fatal termination is possible.

In the study of ringworm in adults, it is convenient to discuss the subject according to the regions affected, including the scalp, beard, glabrous skin and nails. In children the bearded region does not concern us and little attention need be paid to ringworm of the nails which is rare. While the disease in children is common on both the scalp and glabrous skin, it is in the former situation that it assumes the greatest importance. Ringworm of the non-hairy skin with the exception of the hands and feet is an unimportant disease of comparatively short duration and readily amenable to treatment.

RINGWORM OF THE SCALP

Etiology.—Ringworm of the scalp is essentially a disease of children, particularly of school age. The disease is rare in infants and in the vast majority of cases disappears spontaneously at puberty. This is essentially true of infection due to microsporon. In a small proportion of cases of trichophyton (endothrix) ringworm, the disease persists for a few years after puberty, while in rare cases the infection may take place in adults. In a recent study of ringworm of the scalp in adults, R. W. Fowlkes and I were able to collect only fifty-three cases from the entire literature, including three of our own. The list included only cases confirmed microscopically or by culture. Considering the great prevalence of ringworm of the scalp in certain parts of the world, the small number of cases seen in adults shows the disease to be essentially one of childhood. It is undoubtedly seen more often in boys than in girls, though certain types of trichophyton (endothrix) are said to occur more frequently in the latter sex. The prevalence of the disease varies in different parts of the world. It is common in England, France and the United States, while it is relatively infrequent in Germany. The disease is most frequently seen among the poorer classes especially in the congested areas of large cities.

Ringworm of the scalp is in general a decidedly contagious disease, especially when due to the microsporon. It is rare to find only a single member in a family of children affected. When living together in close contact, unless great precautions are taken, all of the children of a family are likely to be infected. The disease occurs frequently in epidemics in schools and juvenile institutions where it frequently presents a medical problem of considerable importance.

Certain types of ringworm fungus are seen only in human beings while others attack both human beings and some domestic and wild animals. Horses, cattle, dogs, cats and in rare cases birds may furnish the indirect source of human infection. As a matter of fact the majority of cases of ringworm are communicated from one child to another either directly or through the medium of hats, brushes, combs and towels. Infection may be traced occasionally to contact with one of the domestic animals.

Symptoms.—The clinical appearance varies according to the type of fungus which is present. A convenient rule suggested by Sabouraud holds good in the majority of cases, namely, that large patches are caused by the small spore and small patches by the large spore type of fungus. In the United States the large patchy type (due to microsporon) seems to be the most prevalent. This form of ringworm is the only one with which the average physician is familiar and is the one in which the layman frequently makes a correct diagnosis. It is conveniently spoken of as *gray patch ringworm.* The earliest stage of the disease, before the fungus has entered the hair-follicle, is ephemeral and usually overlooked. It consists of superficially reddened, slightly scaly patches, due to growth of the fungus in the horny layer of the epidermis. The extension of the disease is then apt to be rapid and with the involvement of the hair a characteristic picture develops. There may be only a single patch, though more often they are multiple. The patches consist of circular disks of varying sizes, seldom more than two inches in diameter. They are usually covered with more or less fine grayish scales and are partially bald, the hairs being broken off a few millimeters from the surface, forming the most characteristic feature of the disease, the so-called "stumps." Larger areas may be formed by the coalescence of two or more patches. The baldness is nearly always partial. In exceptional cases it may be complete and resemble alopecia areata.

The breaking off of the infected hairs is due to the presence of fungus which surrounds and invades them, making them so brittle that the slightest traumatism causes them to break. To be properly examined the broken hairs should be seen in a good light, a magnifying glass being a useful though not essential aid. In the type of ringworm under discussion nearly all the hairs of an infected area are broken, in contradistinction to certain types of large spore ringworm to be considered later. The hairs are dull and lusterless, their normal elasticity is lacking and their ends are ragged and frayed. Microscopically they show the characteristic mosaic-like sheath of small spores. While any portion of the scalp may be affected by ringworm, the favorite sites are the vertex and parietal regions. At times there may be slight itching. If untreated, this type of ringworm may persist for years, though it nearly always disappears at puberty. In rare instances it has been noted in adults. After the disappearance of the disease, the scalp returns to its normal condition, leaving no scarring or permanent baldness except as a result of improper treatment.

The *disseminated* type of ringworm is less frequent in the United States than the above form, but is of special importance on account of the frequent failure to recognize it. It is usually caused by one of the species of trichophyton (endothrix) especially the *Trichophyton crateriforme.* The affected areas are small in size, numerous and widely disseminated over the scalp. In many cases the scaling may be so slight and the broken hairs so few that the disease may escape detection, especially in girls. Even in the cases in which a moderate number of patches can be recognized it is astonishing to see how many more become visible when the hair is closely cropped. The scaling varies in amount and may be entirely absent. The relative number of broken hairs or "stumps" is notably less than in the gray patch ringworm in which the great majority are affected. At times the hairs break off at the follicular openings and appear as small comedones or black specks and constitute the so-called *"black dot ringworm."* In other cases there is a heaping of scales at the mouth of the follicles, giving the patches the appearance of gooseflesh or keratosis pilaris.

The inflammatory changes in ringworm vary greatly in different types. In some of the cases, due to *Trichophyton endothrix,* such changes may be practically absent. They are slightly more marked in the microsporon types.

The most severe inflammatory reaction is seen in the forms of *pustular ringworm* due largely to different species of *Trichophyton ectothrix.*

The inflammatory changes represent an attempt on the part of nature to affect a cure, the infected hairs being loosened from the papillæ by an invasion of leukocytes. The greater the inflammatory reaction, the better is the prospect of spontaneous cure. In the severest type of inflammation, such as kerion, the disease usually disappears spontaneously in a few weeks. The production of pustulation is chiefly due to the fungus itself and not to secondary invasion with pyogenic cocci. In other words, certain types of the ringworm fungus are themselves pyogenic. The pustular types are seen on the scalp and glabrous skin and may appear as small vesicopustules, deep-seated nodular lesions or true kerion.

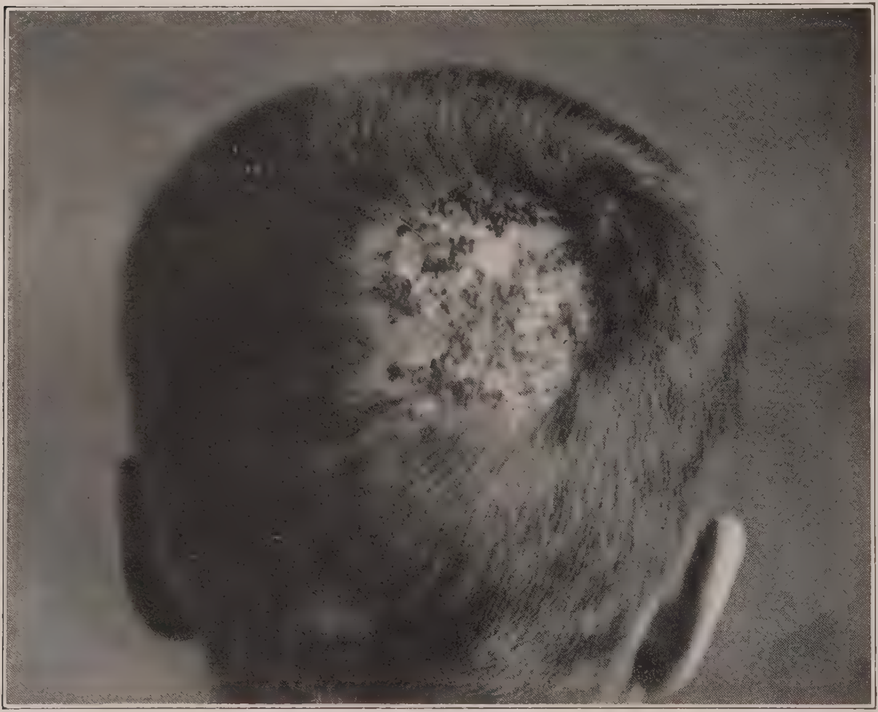

Fig. 58.—Kerion.

Pustular type of ringworm showing marked inflammation with possibility of some scarring and loss of hair.

Kerion is a peculiar type of pustular ringworm first described by Tilbury Fox. It consists of a shiny, elevated, round or oval, sharply defined, boggy swelling which suggests an ordinary abscess. This type is due to an infection of contiguous follicles, the walls of which do not break down and form a single cavity as in ordinary abscesses. Sabouraud describes the lesion as having the shape of a macaroon, whose entire surface is elevated and riddled with follicular abscesses, which are early visible and open, transforming the follicles into purulent pits from which suppuration evacuates the dead hairs. In the early stages the hairs persist and on examination show the presence of fungus. Kerion usually occurs as a single lesion though at times it may be multiple. Pain and tenderness may be present but are notably less than in an abscess. According to the number of follicles destroyed there will be more or less follicular scarring and baldness. As a rule this is not very great.

RINGWORM OF THE GLABROUS SKIN

While ringworm may be situated on any part of the smooth skin it is most frequent on uncovered parts, such as the head, neck, hands and forearms. Its variation in appearance is doubtless due, in part at least, to the type of fungus present. Ringworm of the smooth skin may appear alone or together with a similar infection of the scalp or nails or both. It appears in the form of scaly macules, circles, disks and deep-seated pustules. Ill-defined reddish, scaly macules may be noted on the face and neck in association with microsporon ringworm of the scalp. Such lesions are usually ephemeral. The classic type of the disease from which its name is derived is a circular or oval patch with a clear center. Such a lesion begins as a reddish macule and extends centrifugally, the center looking normal or slightly scaly. The ring itself is pinkish, sharply marginated and consists of minute scales with or without an admixture of fine vesicles. Such a lesion may be single or a half dozen or more may be present. In rare instances the disease is widely disseminated. It may at times closely resemble pityriasis rosea. The individual lesions vary in size from a split pea to circles one to three inches in diameter. Several may coalesce and form polycylic figures and at times there may be two or three concentric circles from a later recrudescence.

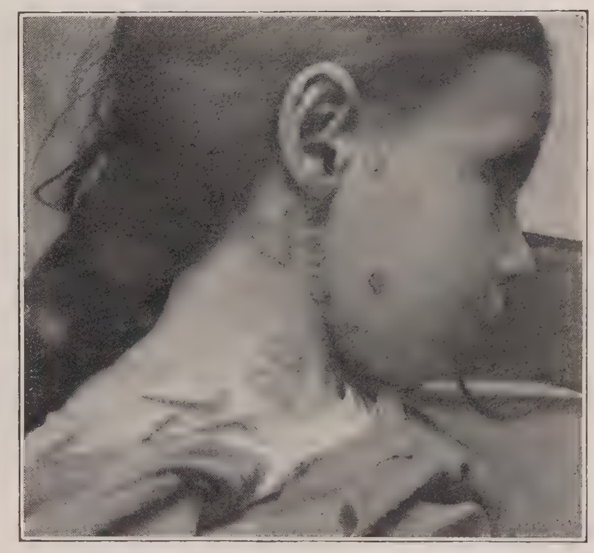

FIG. 59.—TINEA CIRCINATA (RINGWORM).

Subjective symptoms are absent or consist of a trifling amount of itching. The causative fungus is found in the active, advancing border. After attaining a certain size the lesion becomes darker in color, the circles break up and disappear.

Frequently the lesions are not ring shaped but consist of solid round or oval plaques or disks. In such cases the entire lesion may be scaly or dotted with vesicles. At times the disease may be much more inflammatory and distinctly pustular. Lesions somewhat similar to kerion of the scalp are seen, especially on the back of the hands, including the type described by Leloir as agglomerate folliculitis. On rare occasions a deep-seated granulomatous tumor may be present, the so-called granuloma trichophyticum described by Majocchi.

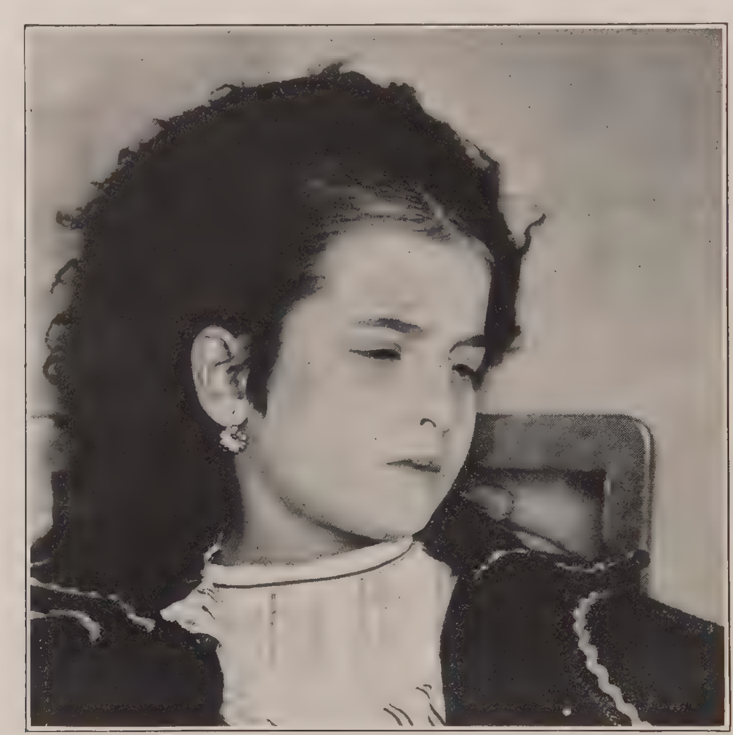

Fig. 60.—Tinea Circinata (Ringworm) Showing Concentric Circles.

RINGWORM OF THE HANDS AND FEET

There are certain types of ringworm of the hands and feet, which are entirely different in appearance from the familiar circinate or discoid lesions of the smooth skin. The first to recognize this was Moukhtar in

1892 followed by Whitfield in 1908. The interest in this disease has been greatly stimulated in America by the work of Ormsby and Mitchell, C. J. White, Weidman, Williams and others. It is now well known that many dermatoses of the hands and feet, formerly classed as eczema or pompholyx, are now recognized to be ringworm. One of the commonest is the so-called eczematoid ringworm, affecting particularly the fingers. This is a vesiculosquamous, usually itchy eruption, in which a probable diagnosis can often be made by the tendency of the patches to be rather sharply defined. While the diagnosis is established with certainty by finding the organism, this is unfortunately difficult in many cases, by either the microscope or culture. The dysidrotic type receives its name from its resemblance to the eruption with deep-seated vesicles called dysidrosis (pompholyx). In fact, it now seems probable that most of the cases which were formerly described as dysidrosis or pompholyx were in reality merely examples of ringworm. Other types of ringworm of the hands and feet are the intertriginous and keratotic. The former consists of thick, white, macerated scaling between the toes, especially the fourth and fifth. The keratotic type affects the soles and occasionally the palms and is rare. These types are not always due, as some suppose, to the epidermophyton inguinale but also to various species of trichophyton as Greenwood and others have shown.

RINGWORM OF THE NAILS

Ringworm of the nails is not a common affection even in adults and in children is decidedly rare. It may exist alone or in association with ringworm of the scalp or glabrous skin. The finger nails are much more liable to be affected than the toenails. Ringworm may attack one or several nails and in rare cases all the finger and toe nails may be involved. The disease is insidious in onset, is chronic and causes no subjective symptoms. The infection takes place as a rule under the free border at the sides of the nail, invading first the nail bed and later the nail plate itself. In many cases only the distal half or two-thirds of the nail are affected. In the early stages the nail may be opaque, thickened or elevated. In more advanced cases it is eroded and has a dirty yellowish opaque appearance. It is seldom possible to differentiate ringworm of the nails from favus, except by culture. The disease is usually due to one of the trichophytons or very rarely to an epidermophyton. It is never caused by microsporon.

PATHOLOGY OF RINGWORM

The causative parasite of ringworm was described as long ago as 1841 by Gruby. It is due, however, to the comparatively recent work of Sabouraud that our knowledge of the parasitology of the disease has been greatly extended. The organism of ringworm belongs to the simple rudimentary type of mold and is classed among the hyphomycetes or so-called fungi imperfecti. In addition to a probable saprophytic existence, it thrives on the keratinized tissues of the human body as well as those of many animals. In the horny layer of the skin, and in the hair and nails, the organism appears as irregular branching masses of tubular filaments known as hyphæ or mycelial threads and small spherical and quadrangular elements generally spoken of as spores. When grown on artificial media, more complicated phases of reproduction appear which are of considerable aid in classifying the parasite.

The idea that the ringworm fungus consisted of a single species was shown by Sabouraud to be erroneous. He proved by cultural methods, with a special medium, that there were many distinct species (or perhaps varieties) of the fungus. In his classic work *Les Teignes,* he listed forty species, many of which he had himself isolated. A few additional ones, chiefly of tropical types, have been described by Castellani and Chalmers, McCarthy and others. The recognition of a large number of species of ringworm, while of scientific interest, is not of much practical value. The most important distinction is the main classification of microsporon and trichophyton. The microsporons are of both human and animal origin and attack the scalp and the smooth skin. The trichophytons are divided into two main groups, the endothrix and the ectothrix, depending on whether or not the fungus is mainly inside or outside of the hair. Both of these types affect the glabrous skin as well as the scalp. The endothrix is probably solely of human origin. The ectothrix, which is responsible for many of the severe pustular forms of the disease, is undoubtedly of animal origin.

Infection by ringworm takes place at first in the horny layer of the skin. Later (in the case of the scalp) the fungus enters the follicle, descending between the hair and the follicular wall. It then penetrates the cuticle of the hair and grows downward in the cortex but does not invade the bulb to any extent. The fungus then continues to grow downward in the hair while at the same time the hair is growing upward. The microscopic appearance of a hair infected with microsporon is that of a mosaic-like sheath of small, round or polyhedral bodies more or less completely surrounding the hair. Mycelial filaments invade the hair itself but are not easily seen in the ordinary preparation. The appearance of a trichophyton infection varies according to the type. In hairs fully infected with the endothrix variety, the fungus is seen entirely within the hair itself. In the ectothrix type (also called endo-ectothrix by some authors) the fungus appears both in the cortex and outside of the hair. The diagnostic feature of the trichophyton fungus of whatever type is the tendency for the mycelium to divide in short chain-like elements which are generally called "spores." Strictly speaking, they are small quadrangular or spherical segments of mycelial filaments. Even when massed together it is usually possible to see some evidence of this chain formation. When the elements are disassociated in the process of making a microscopic preparation, they naturally appear as separate and distinct bodies.

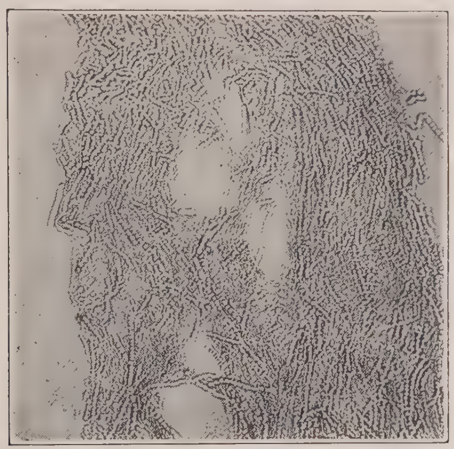

Fig. 61.—Ringworm Fungus in Hair. The chain formation is typical of the trichophyton. Photomicrograph.

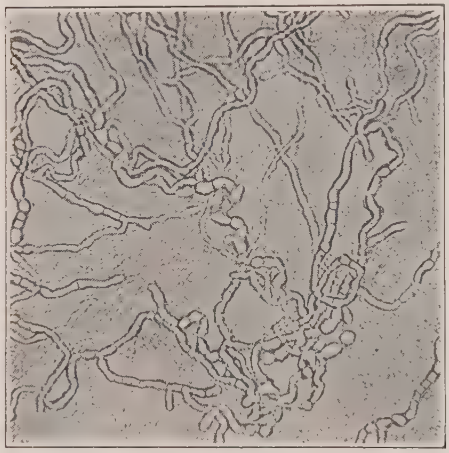

Fig. 62.—Ringworm Fungus from Finger Nails Showing Profuse Amounts of Mycelium. Photomicrograph.

For the microscopic examination of hairs it is essential to know that the fungus will only be found as a rule in the short broken hairs or stumps. In epilating such hairs with a suitable type of forceps, gentle traction only should be used. The customary method of making an extemporaneous preparation is to place the scales or hairs on a clean slide, add a few drops of caustic potash solution, lay a cover glass on the preparation and examine with ordinary high dry power. It is unnecessary to wash the hairs in ether, as is recommended by some authors, previous to adding the potash solution. The latter may be used in different strengths, a 30 per cent solution being entirely satisfactory. To hurry the process of softening the keratin of the hairs or especially the nails, the slide may be gently heated to the point of boiling. Little is gained by making stained preparations which incidentally are less satisfactory than unstained ones for making photomicrographs.

The question of immunity in ringworm has been studied by Plato, Bloch and Massini, Lombardo, Adamson and very recently in this country by Greenbaum. In the case of certain deep-seated types of ringworm it was found possible to produce both a local and general reaction by injection of "trichophytin," an extract made from cultures of trichophyton fungus. In both men and animals a certain amount of immunity probably exists in cases of deep-seated inflammatory ringworm. This is probably not true, however, of superficial types affecting the scalp or glabrous skin.

DIAGNOSIS OF RINGWORM

Ringworm of the Scalp.—The diagnosis of the average case of ringworm of the microsporon type should not be difficult. The presence of dry, more or less scaly, non-itchy patches presenting partial baldness and the characteristic broken off hairs or stumps should suffice to establish the diagnosis. This is made certain by microscopic examination. Cases of disseminated ringworm (due to endothrix trichophyton) are often mistaken for ordinary pityriasis (dandruff), psoriasis, or seborrheic eczema. Any case of disseminated scaling in a child should be suspected of being ringworm and a careful search be made for broken hairs. Ordinary dandruff is unusual in children, while ringworm is very common. The ordinary case of ringworm could not well be mistaken for alopecia areata with its areas of complete baldness and absolute freedom from scaling. An advanced case of favus with its irregular areas of baldness, scarring and stiff coarse hairs, even without the presence of scutula, would not be mistaken for ringworm. In the earlier stages, before scarring has occurred and when the scutula have been removed by treatment, the clinical differentiation is difficult. Even the microscopic differences are not always conclusive. Cultures, however, settle the diagnosis. The kerionic form is mistaken at times for a furuncle or an abscess. The lack of severe pain, the glary mucopurulent discharge and the presence of the fungus in the loose hairs or secretion establish the proper diagnosis.

Ringworm of the Glabrous Skin.—The diagnosis of ordinary circinate ringworm is usually easy. The disease may be simulated, however, by the circinate type of impetigo contagiosa which, however, usually shows some evidence of its vesicular or bullous character. Impetigo as a rule presents a moist, shiny surface and fragments of the roof of vesicles or bullæ may be seen. The vesicles which may be present in a circinate patch of ringworm are likely to be extremely small and recognized only with ease when a magnifying glass is used. The circinate type of erythema multiforme may simulate ringworm except that in the former there is rarely any scaling, and vesicles, if present, are large. The annular lesions of early syphilis, especially in negroes, suggest ringworm. Such rings are, however, the remains of solid papules and are never scaly or vesicular and the central area becomes more or less deeply pigmented. In certain rare cases of ringworm, the appearance of pityriasis rosea may be so closely simulated that the differential diagnosis can only be made by the microscope.

The discoid pustular types of ringworm may resemble eczema but their sharply defined borders distinguish them from this disease. The eczematoid types of ringworm are often mistaken for eczema, although in such cases the patch at one place or another will show a tendency to be sharply demarcated.

Ringworm of the Nails.—This cannot ordinarily be distinguished from favus except by culture. The most characteristic features of the two affections are lack of symmetry in the affected parts and in the earlier stages the presence of the disease in the distal portion of the nails. The latter sign is in marked contrast to paronychia in which the nail changes are first noted at the root or proximal part of the nail from which they extend distally. In the great majority of cases the surrounding skin is not affected as in eczema, psoriasis and many other skin diseases which may be accompanied by dystrophic changes of the nails.

TREATMENT OF RINGWORM

Ringworm of the Scalp.—The treatment of ringworm of the scalp except by Roentgen rays or thallium acetate is in general unsatisfactory. Mechanical epilation is not successful on account of the brittleness of the hairs, as when even the gentlest traction is used, a portion of the hair remains in the follicles and perpetuates the infection. Treatment with parasiticidal remedies is also unsatisfactory as they do not penetrate the follicle to a sufficient depth to destroy the fungus. Four years after the beginning of his studies on this disease, Sabouraud expressed the opinion that no antiseptic would ever be discovered to cure ringworm of the scalp, as in his opinion the "root of the hair is inaccessible to antiseptics." Many drugs, however, have been used for this purpose including tar, mercury, potassium hydrate, phenol, the oleates, essential oils, iodin and chrysarobin. Even by the use of cataphoresis it has not been possible to successfully introduce these drugs into the follicles. When some enthusiast had claimed that he could cure ringworm in three weeks with some new or perhaps old remedy, Sabouraud simply replied that it is "necessary to wait at least six weeks to affirm that a case is cured."

While external applications are of no value as parasiticides, they may be helpful from their irritating effects. If a sufficiently violent inflammatory reaction can be produced, there will be a possibility of cure. As has been previously said, spontaneous cure may result from the presence of an inflammation, the hairs being detached by an invasion of leukocytes. This is most apparent in the severe pustular and kerionic types of ringworm. One of the most useful drugs for the purpose of causing local irritation of the scalp is iodin. This may be used to advantage in the form of 10 per cent ointment of iodin crystals in goose-grease, highly recommended by the late George T. Jackson. The goose-grease (adeps anserinus) is recommended on account of its supposed power of penetration. As the effect of iodin or any other drug is apparently due to its irritating action, rather than its parasiticidal power, the presence of a supposedly penetrating grease would not be essential. In my opinion the same result could be produced by using vaselin as a base. At all events if the above ointment is used, it should be rubbed into the scalp vigorously three or four times a day for as many days or weeks as it can be tolerated by the patient. Simply smearing on the ointment once or twice a day will not have the desired effect. It is necessary to produce a more or less disagreeable or painful inflammation, to obtain the best results. Such treatment, if vigorously carried out, may be able to effect a cure.

As a rule it is advisable to have the hair cut short. In addition to the use of iodin or other irritating applications, the scalp should be shampooed daily with green soap. A linen skull cap should be constantly worn and changed daily. In order to lessen the danger of infecting other children, the scalp should never be allowed to become dry. Some greasy substance, if only simple vaselin, should be constantly applied. Intimate contact with other children should be avoided and unless under active treatment the child should not be allowed to go to school. The greatest care must be taken to avoid the promiscuous use by healthy children of infected combs, brushes, towels or hats and infected children should sleep alone.

The use of the Roentgen rays in ringworm of the scalp was first suggested by the experience of Freund and Schiff in 1896 who observed a fall of hair in nevus which they had treated with the new agent. For many years the attempts to elaborate a safe technic for treating ringworm of the scalp were unsuccessful. In 1904 Sabouraud and Noiré were able to announce a cure of one hundred cases of ringworm by a safe method of treating each infected area by a single application of measured Roentgen rays. While highly successful, their technic was rather complicated, as ten to twelve separate exposures, preferably given at one sitting, were required to treat the entire scalp. Their method has largely been replaced, in England and America at least, by the simpler one devised by Kienböck of Vienna and later improved and popularized in England by Adamson.

With the so-called Kienböck-Adamson method, it is only necessary to irradiate five areas at one sitting to cover the entire scalp. This procedure may be easily completed in half an hour and constitutes the entire treatment, subsequent visits of the patient being chiefly made to observe the progress of the epilation and eventual return of hair.

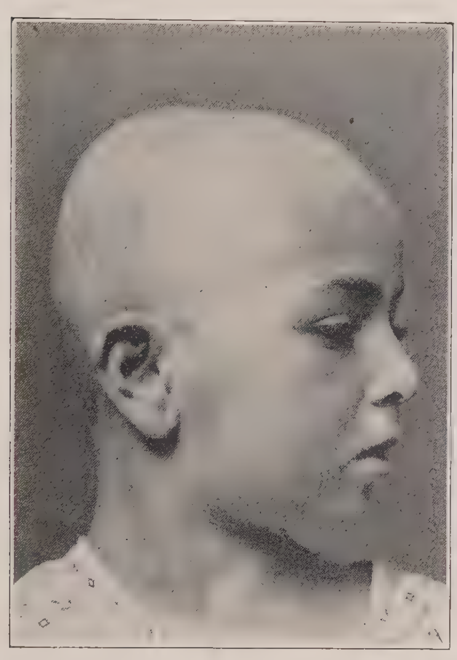

Fig. 63.—Temporary Alopecia Produced by the Roentgen Rays in the Treatment of Ringworm.

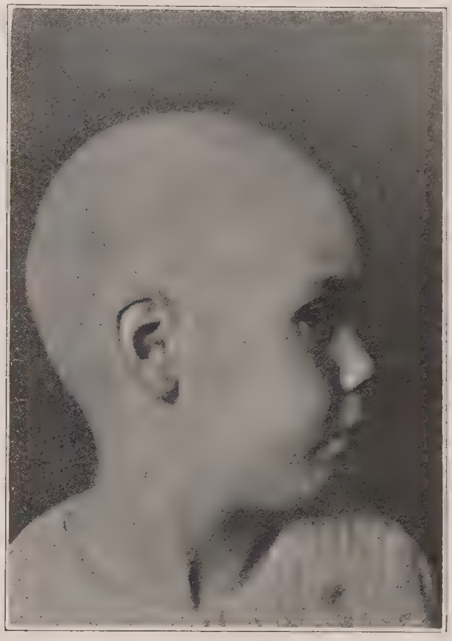

Fig. 64.—Temporary Alopecia Produced by Thallium Acetate in the Treatment of Ringworm.

The introduction of the Coolidge tube and interrupterless transformer have made it possible to measure the dosage of the Roentgen rays by electrical methods and to dispense with the use of pastilles. By this direct (electrical) method a dosage of unfiltered Roentgen rays that is sufficiently accurate for practical purposes can be obtained by adjusting four essential factors. These are the spark gap (representing voltage) milliamperage, time and distance (anode to skin). A definite set of such factors are recommended by Remer and Witherbee as a result of their experimental work. By simple arithmetical computation such factors may be interchanged to suit the convenience of the operator.

For a full description of the technic the reader is referred to the work of MacKee who has done much to simplify and popularize the treatment of skin diseases by the Roentgen rays. The subject has also been discussed by J. B. H. Anderson and the writer, who instituted this method at Ellis Island for the treatment of immigrant children suffering from ringworm and favus of the scalp.

Before a child with ringworm of the scalp is treated by the Roentgen rays, it is necessary or at least advisable to have the hair closely cut (not shaved). It is important to avoid the use of irritating applications for a week or two before irradiation in order to lessen the possibility of an erythema. The dosage of Roentgen rays should be just sufficient to cause a more or less complete epilation without the production of the slightest bit of erythema as this may lead to greater or less degree of permanent baldness. The treatment of ringworm of the scalp gives a good practical proof of the correctness of the dosage; for if this is too small, epilation will not take place, while if too large the resulting epilation may be permanent. At the end of two, or usually three weeks after treatment, the hair begins to fall, the scalp becoming bald in a few days and remaining so for a month to six weeks. A downy growth of hair then appears, soon becoming normally pigmented. In a few cases there is a change of color and consistency of the hair, constituting an argument, as Hazen has suggested, for irradiating the entire scalp even when only a portion of it is diseased. As soon as the hair becomes loose the scalp should be frequently anointed with a mild parasiticidal ointment (3 to 5 per cent ammoniated mercury) and its use continued for several weeks. The object of such an ointment is to prevent reinfection and to protect other children with whom the patient may come in contact.

The use of vaccines as recommended by Strickler has not proved satisfactory. A favorable result could hardly be expected in the superficial types of ringworm of the scalp or glabrous skin or of the nails where the immunizing blood does not come in contact with the fungus.

Treatment of ringworm of the scalp by internal administration of thallium acetate has been lately used in Europe and in the United States. The drug was first used for ringworm by Sabouraud in 1897 who noted a fall of hair in a patient who had been given it for dysentery. His results were unsatisfactory, owing to small doses, and as some toxic symptoms appeared the method was abandoned. The first to use thallium acetate successfully was Cicero of Mexico whose results were slow in becoming known to the medical world. According to Abramowitz, over 350 cases had been treated by Cicero by the end of 1918, no serious complications being noted. He also quotes Pardo-Castello as saying that the total number of Cicero's cases is now more than one thousand and that Uruena (also of Mexico) has treated over six hundred cases without serious accident. Felden was the first in this country to use this remedy, reporting the results of treatment in forty-seven cases in New York, of which thirty-six were cured by a single dose of the drug. Pardo-Castello had successful results in thirty of his thirty-two cases and very recently Earle has reported cures in all except two of a series of twenty-six cases.

The method of treatment consists in the administration by mouth of a single dose of the protoxid of thallium acetate, 0.8 milligram being given for each kilogram of body weight. The greatest care should be used in weighing both the drug and the patient (the latter being stripped). The drug is given in sweetened water on an empty stomach. It should not be given to children approaching puberty, nor to those whose weight and age do not approximately correspond. Any disease of the kidney is an absolute contra-indication to treatment. Furthermore, in case of failure, the treatment should not be repeated for two and a half months or more as the action is cumulative.

The hair begins to be loose at the end of about one week and epilation is more or less complete at the end of about sixteen to nineteen days. When some hairs remain, as often happens, they may be mechanically epilated by adhesive plaster which is momentarily applied and suddenly removed. The scalp remains bald for a month, after which new downy hairs appear and eventually become normally pigmented and vigorous. The scalp should be washed daily and an antiparasiticide applied. Toxic effects, which are seen at times, include, according to Felden, neuralgic pains in the muscles and joints, choreic convulsions, albuminuria, gastro-intestinal disturbances, secondary anemia and tachycardia.

The action of thallium acetate in causing alopecia is limited to the hair under the control of the sympathetic nervous system and does not affect the eyebrows which are innervated through the central nervous system. Due to a possible injury to the endocrine sympathetic system, Pardo-Castello feels that the method should not be used in preference to the Roentgen rays. He expresses this opinion in spite of his excellent results with thallium acetate.

Abramowitz, from a personal experience and study of reported cases, says that the Roentgen rays give better and more consistent results than treatment by thallium. The latter method is more economical and the one of choice for very young children and for those who are mentally or physically unsuited for treatment by the Roentgen rays. Under any circumstances, thallium acetate should not be used unless its contra-indications are understood and the greatest possible care is observed in its administration.

Ringworm of the Glabrous Skin.—The treatment of ringworm of the glabrous skin (with the exception of the hands and feet) is simplicity itself. Any parasiticidal ointment will serve the purpose, one of the most convenient and cleanly being 5 to 10 per cent ammoniated mercury. Iodin ointment as mentioned above for use on the scalp will also produce a quick cure. When the hands and feet are involved the treatment is infinitely more difficult. One of the most popular remedies at the present time is the Whitfield ointment (see Formulary p. 340). This should be tried out at first in half strength, increasing carefully to full strength if necessary. It is by no means always successful. The Roentgen rays alone or in combination with the Whitfield ointment are often of great value.

Ringworm of the Nails.—The treatment of ringworm of the nails is very unsatisfactory as a rule. The quickest and surest method to obtain a cure is to forcibly remove the entire nail, under local or preferably general anesthesia, followed by application of a parasiticide such as tincture of iodin. A small proportion of cases are cured by the Roentgen rays, the manner of their action in this condition not being understood. With the exception of these methods the treatment consists in repeated scraping of the nail followed by the application of a parasiticidal ointment, continued as a rule for many months.

PROGNOSIS OF RINGWORM

Ringworm in all its forms is curable. Ringworm of the scalp may be easily cured in a short time by the Roentgen rays and often by thallium acetate. Treatment by other methods may require many months or even years. In almost every case the disease disappears spontaneously at puberty. No permanent disfiguration is caused except a slight scarring in certain cases of kerion. Ringworm of the glabrous skin disappears spontaneously after weeks or months. It is easily cured in the great majority of cases, an exception being the infections of the hands and feet which are very resistant to treatment. Ringworm of the nails, which is rare in children is an exceedingly chronic and intractable affection.

FAVUS

Symptoms.—The earliest manifestations of favus, which are seldom recognized as such, consist of small, slightly raised, erythematous macules and minute pustules. Upon some of these lesions the crusts of favus develop, constituting a pathognomonic sign of the disease. The crusts, which are usually spoken of as "cups" or scutula, consist of discrete, pea-sized, sulphur-colored, friable disks usually pierced by one or more hairs. They may coalesce and form large, dirty, yellowish or brownish mortar-like masses in which the cup formation is no longer evident. This is suggested, however, by the well-defined scalloped border.

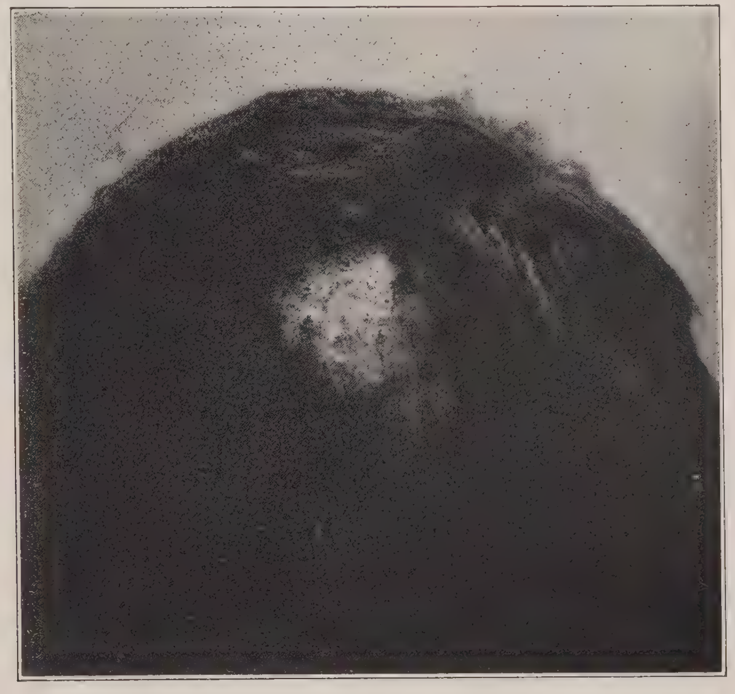

Fig. 65.—Favus.
Note small cup-shaped crusts.

The most noticeable sign of favus of the scalp, next to the characteristic cups, is the presence of bald patches of varying sizes. They do not present the familiar picture seen in ringworm of well-defined round or oval patches. They are irregular in shape and partly covered by hairs, the majority of which are not broken off as in ringworm. Whenever the disease is active, the color of the scalp is bright red, a feature of considerable diagnostic value. In the earlier stages there is no apparent change in the texture of the scalp. In the later stages a characteristic appearance is presented by scarring and areas of permanent baldness covered by a sparse amount of coarse hair. The formation of the scar tissue is slow, not appearing until months or years have elapsed. It is noted at first in isolated points between active lesions. In severe cases it may eventually affect the greater part of the scalp.

The infected hairs are dry and lusterless and may be split longitudinally. They do not contain as large an amount of mycelium as the hairs of ringworm and are consequently much less brittle. A minority only are broken and appear as stumps. Favus hairs can be epilated more easily and with less pain than those of ringworm. They can be removed without breaking off within the follicles which accounts for the fact that the disease is curable by mechanical epilation. Favus hairs may show the presence of a glassy sheath around their roots which is not, however, of much diagnostic value. The so-called "mousy" odor of favus is a sign of little diagnostic value. It is present only in cases with a large amount of crusting when the recognition of the disease is usually easy. Subjective symptoms are absent in favus or consist of slight itching. When complicated by pediculosis, itching is naturally intense. In doubtful cases

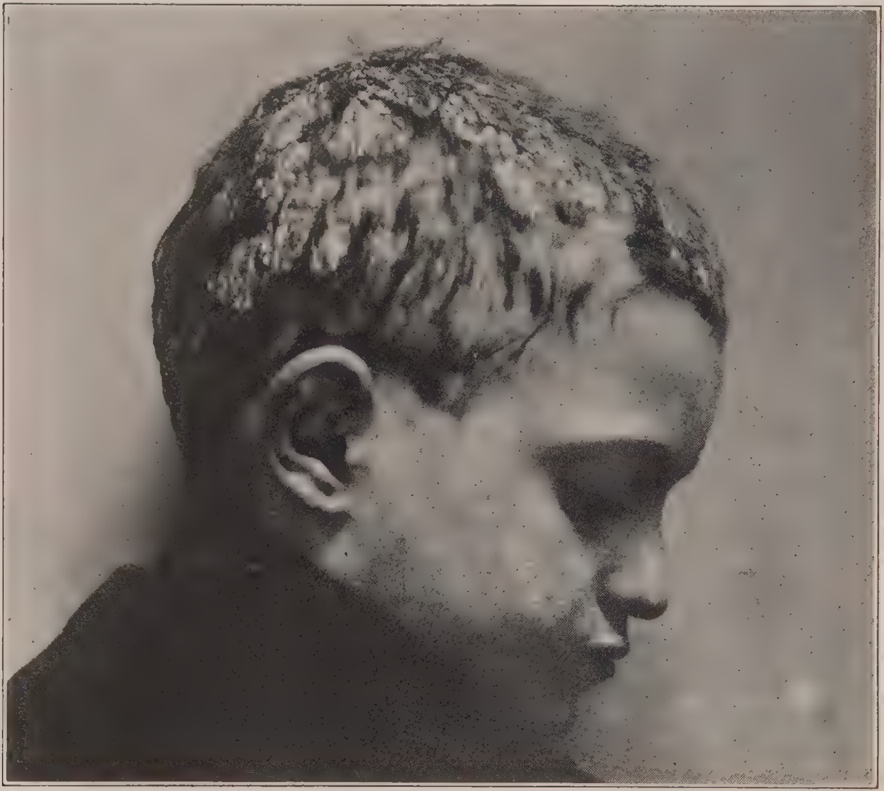

Fig. 66.—Favus.
Extensive eruption of "cups" and mortar-like crusts.

showing no scutula, the diagnosis is aided by microscopic examination of the hairs. Even though fungus is found it is often difficult or impossible to distinguish between ringworm and favus. This can be done with certainty by culture.

Two unusual types of favus without crusts have been described by Dubreuilh. The first or pityriasic type may resemble ordinary dandruff, dry eczema or psoriasis. In such a case the diagnosis rests mainly on the presence of the dry, lusterless appearance of the infected hairs which contain the fungus. Beneath the scales it is also nearly always possible to find pinhead sized crusts and if the disease is of long duration, little areas of cicatricial baldness. The diagnosis of the second or impetiginous type is made from the long duration, beginning cicatrices and appearance of the hairs as mentioned above.

Favus of the glabrous skin is rare. It begins as erythematous disks or circles on which the characteristic yellowish cups develop. When these have once appeared, the disease usually continues to spread indefinitely. It is readily amenable to treatment unless extensive, but seldom disappears spontaneously as it does on the scalp. Favus of the glabrous skin is rarely followed by any appreciable scarring. One of the favorite sites for a localized patch of the disease is the scrotum. In certain cases when children have lived under unfavorable hygienic conditions, or have been subjected to the grossest neglect, the disease has extended over large areas of the body and even resulted fatally.

Favus of the nails is rare. It may exist alone or in combination with favus of the scalp. The appearance is similar to that of ringworm of the nails, the clinical differentiation being ordinarily impossible.

Etiology.—Favus is a contagious disease which is seen chiefly in childhood. It differs from ringworm in that it does not tend to disappear at puberty. It is rare in infants and uncommon in adults. Favus is seen mostly among those who do not observe the proper rules of hygiene. Unlike ringworm it occurs more often in rural than in urban communities, suggesting the possibility of a saprophytic existence of the parasite. In the United States the great majority of cases are imported from certain parts of Europe, such as Poland, Russia, Rumania and Italy, where the disease is more or less endemic. It is more common in boys than in girls.

The contagiousness of favus is notably less than that of ringworm. Unlike the latter disease it is rare to see all the children of a family affected. While it is well known that certain animals such as mice, dogs, cats and chickens may suffer from favus, they are not as a rule the cause of this infection to man. It is difficult, in fact, in many cases to trace the source of infection. It seems quite possible that traumatism may play a part in allowing the fungus to obtain a foothold.

Pathology.—The microörganism which causes favus, the *Achorion schœnleinii* was discovered in 1839 by Schoenlein. It is prevailingly a human parasite and is responsible for nearly all human infections. Four other species of achorion have also been described which are the cause of favus in certain animals and in rare cases in man. Like the various species of ringworm, the achorion lives in keratinized tissue, such as the horny layer of the epidermis, the hair and nails. After lodging on the scalp it proliferates in the horny layer of the epidermis and then enters the hair-follicle between the hair itself and inner root sheath of the follicle. An inflammatory reaction is produced with the formation of a tiny pustule, in the center of which are the hair and a colony of fungus. The continued growth of the fungus eventually produces the clinical "cup" which is simply a solid mass of mycelial threads and spores, situated entirely within the epidermis. Acting as a foreign body it causes marked inflammatory reaction in the cutis with the subsequent formation of scar tissue and extrusion of the crusts. While the scarring has been supposed by many to be a form of pressure atrophy, Sabouraud does not subscribe to this view, calling attention to the fact that favus crusts on the glabrous skin do not produce scarring.

The fungus invades the hair itself but to a much less extent than in ringworm. It appears as mycelial threads of varying thickness and length and of large oval or round spores. According to Sabouraud the presence of air bubbles in the hairs (from the entrance of the potassium hydrate solution) is "almost characteristic" though various other observers do not find this phenomenon constantly present. The appearance of the achorion which is eventually situated entirely within the hair, is one of marked polymorphism.

Diagnosis.—The diagnosis of favus is easy when the characteristic cups are present, as these lesions are not simulated by any other disease of the skin. When in addition there are reddened areas of partial baldness with more or less atrophic scarring and coarse lusterless, dry hairs, the picture is complete and could scarcely fail to be recognized. In cases in which no cups or crusts and little or no scarring are present, the diagnosis is by no means always easy, especially the differentiation from ringworm. I have seen such cases in immigrant children at Ellis Island where great care had been taken before embarkation to remove all crusts from the scalp. The presence of a large number of broken hairs or stumps favors the diagnosis of ringworm, while the well-defined areas of redness are indicative of favus. The differential diagnosis by microscopic examination of hairs is often difficult, even for experts. Cultures, however, are conclusive though the parasite of favus is often hard to cultivate and its growth slow. The simplest plan in doubtful cases is to refrain from using any external application on the scalp and to allow the characteristic cups to develop. These begin to appear in two or three weeks, though the growth may be expedited by applying a "sweat cap" of rubber or other impermeable tissue to the scalp. When considerable crusting is present, favus may be mistaken for psoriasis or seborrheic eczema. In these conditions, the fall of hair is usually slight and almost never permanent. The microscopic examination of the crusts would reveal the presence of fungus. Old cases of favus with scarring often simulate lupus erythematosus or folliculitis decalvans which are rare in children.

There could hardly be any difficulty in recognizing favus of the glabrous skin. The differentiation between ringworm and favus of the nails can only be made with certainty by culture.

Treatment.—It has been shown that the successful treatment of ringworm of the scalp depends on the complete removal of the infected hairs. In the treatment of favus it is not only necessary to remove the infected hairs but the scutula as well. The latter procedure is necessary as a preliminary measure to any method of treatment. This may be conveniently accomplished as a rule, by the continuous application for a few days of olive oil containing 3 per cent of salicylic acid, followed by shampooing with tincture of green soap.

The method of choice for the treatment of favus is, without question, irradiation by the Roentgen rays, used in the same manner as in ringworm of the scalp. The employment of this agent is even more urgent for the treatment of favus as the disease is a more serious one than ringworm. It does not tend to disappear at puberty and causes more or less permanent baldness and scarring. As in the case of ringworm, this agent should only be used by those who are thoroughly conversant with its use in the treatment of skin diseases, and who follow the most modern methods of measured technic. In a certain proportion of cases the first epilation by the Roentgen rays is unsuccessful and a second treatment must be given after a suitable interval.

When treatment by the Roentgen rays is not available a cure is possible by mechanical epilation. This may be accomplished by the use of a mixture containing pitch which is applied to the scalp, allowed to dry and suddenly removed, carrying the adherent hairs with it. This device is effective, though it appears rather violent and crude. It is popularly known by the French as the "Calotte." The best method of mechanical epilation is undoubtedly by a pair of thumb forceps, suitably constructed to firmly grasp the hairs. This treatment must be repeatedly performed as long as the affected patches show any redness or tendency to form minute pustules. It requires an immense amount of patience on the part of both physician and the victim of favus. After several months of repeated epilations the treatment may be suspended and the patient observed for evidence of further activity of the disease. Favus may be considered as probably cured when the crusts have ceased to form, when all redness has disappeared and repeated microscopical examinations fail to show the presence of fungus. Even then the patient should be observed at intervals for many months.

During the period of treatment by epilation, the scalp should be washed daily with soap and water (using green soap preferably) and some form of antiparasiticide should be applied once or twice a day. For this purpose a 10 per cent ammoniated mercury ointment or 10 per cent tincture of iodin may be used. A linen cap should be constantly worn during the course of treatment and the patient kept from intimate contact with other children.

The treatment of favus of the glabrous skin is simple and consists of the removal of crusts and the daily application of a suitable parasiticidal ointment. Favus of the nails is treated in the same manner as ringworm.

Prognosis.—Thanks to the Roentgen rays, the speedy cure of favus of the scalp is now possible. When this agent is not available and other methods must be used, the prognosis will depend largely on the perseverance of both physician and patient in carrying out the treatment. Nothing, however, can be done to relieve the baldness and scarring which occur in cases of long standing. Favus of the glabrous skin is easily cured except in rare cases of extensive involvement in which death may occur. The prognosis of favus of the nails is similar to that of ringworm.

TINEA CRURIS

The disease, which is generally called tinea cruris, was originally described by Hebra as "eczema marginatum." In certain parts of the world it is spoken of as "dhobie itch." It is now known to be due to an infection by the *Epidermophyton inguinale.* This is a type of fungus, allied to ringworm, but which differs in the important respect that it never invades the hair. It is found chiefly in the natural folds of the body such as the genitocrural region and axillæ, where its development is favored by warmth and moisture. The disease consists of superficial, itchy, dry, reddish patches which are usually present on opposing surfaces and are characterized by sharply demarcated borders. In the fine scales of the advancing border the fungus may be found by microscopic examination. While the disease is seen chiefly in adult males it may occur in children, even in epidemic form. In the case of a boy, referred to by MacLeod, the infection was traced to a pair of riding breeches which the patient had borrowed from his father, who was suffering from the disease.

For the treatment of tinea cruris a variety of antiparasiticidal ointments are available, care being used in young children to avoid undue irritation. For this purpose 3 to 5 per cent ammoniated mercury or precipitated sulphur may be used. In obstinate cases in older children it would be proper to use the Whitfield ointment in half strength and increasing to full strength if necessary. If this fails to produce the desired result, a 1 to 5 per cent ointment of chrysarobin in vaselin could be used with the object of producing a dermatitis followed by exfoliation.

PITYRIASIS VERSICOLOR

Pityriasis versicolor is a rare disease of childhood, occurring in children only near the age of puberty.

Symptoms.—The eruption consists of punctate, guttate or larger spots which may coalesce and form large diffuse or irregular areas. Even in the extensive cases some of the smaller lesions are always present. The color is some shade of yellow or brown and in negroes is of a lighter shade than the normal skin. The favorite sites are the chest and back. It is less often seen on the abdomen and arms, while other parts are much less frequently affected. The surface of the patches may show fine branny scaling or appear smooth. On scraping them, however, a characteristic fine scaling becomes apparent, the scales consisting chiefly of fungus. The eruption is non-inflammatory and causes no subjective symptoms, some affected persons not being aware of its existence. It is especially common in those who perspire freely. It runs an indefinite course unless treated but finally disappears spontaneously. The disease is mildly contagious.

Etiology.—Pityriais versicolor is caused by the *Microsporon furfur,* a fungus discovered in 1846 by Eichstedt. This is found solely in the horny layer of the epidermis, never invading the hair or nails. It is demonstrated with the greatest ease under the microscope by placing some of the scales in the usual caustic potash solution. The microscopic appearance is characteristic and consists of a profuse amount of mycelium and spores. The mycelial threads are short, thick, curved and septate. Scattered among them are groups of several dozen, large, double contoured, round spores. The organism has been cultivated with difficulty as it does not grow on ordinary media.

Diagnosis.—The disease may be mistaken for some form of cutaneous pigmentation. The differentiation is, however, easily made by scraping the patches, when it is found that the superficial part of the horny layer can be removed. If there is any doubt about the diagnosis the question is settled without difficulty by the microscope.

Treatment.—The response to treatment is prompt, though unless every vestige of the disease is removed it will recur. Ordinary parasiticidal remedies used for ringworms of the glabrous skin are satisfactory. A common method of treatment, which in my experience has given good results, consists in scrubbing with tincture of green soap and water followed by the application of a saturated solution of hyposulphite of soda. This should be carried out once a day and continued for a fortnight. After a week's rest it should be repeated.

Prognosis.—The disease is harmless but persists more or less indefinitely when untreated. It responds well to treatment which must be thorough or relapses will occur.

The fungous diseases which have just been described are superficial infections of the horny layer of the epidermis and of the hair and nails. Some of them are extremely common in childhood and almost entirely limited to this period of life. With the exception of favus and some pustular types of ringworm, they are essentially harmless diseases which finally disapper without trace. In none of them is life ever endangered.

There remains a group of fungous infections which are more deeply seated and which may be serious and even fatal from involvement of internal organs. These include actinomycosis, blastomycosis, sporotrichosis and mycetoma. As mycetoma is extremely rare in the United States and has only been observed in adults its description will be omitted.

ACTINOMYCOSIS

Actinomycosis is an infectious granuloma which is seen mostly in young adults though it may occur in older children. It is extremely rare in early childhood.

Symptoms.—The onset is insidious and may not appear for months or a year or more after infection. The eruption is usually situated on the face or neck especially in the region of the lower jaw. It is less frequently seen on the trunk or extremities. The cutaneous lesions are nearly always secondary to an infection of the bones or viscera. The eruption begins as one or more indolent, hard, subcutaneous nodules which slowly increase in size, suppurate and discharge through fistulous openings a seropurulent fluid which may contain the causative fungus. The nodules tend to coalesce and form groups in which the lesions are heaped together; or they may form in circles or lines. Ulceration may occur and occasionally fungating papillomatous lesions are seen. The surrounding skin is swollen, boggy and purplish in color. There may be stiffness of the affected parts and occasionally pain. As long as the disease is localized and does not involve the viscera the general health is not impaired. The lymphatic glands are not affected and the disease is rarely disseminated through the lymphatic channels, due, it is thought to the large size of the fungus. The course is chronic and slowly progressive.

Etiology and Pathology.—Actinomycosis is rare in childhood, occurring in 7 per cent of 392 cases collected by Leith. Of this number only four cases were under five years of age. It was found to be nearly three times as common in males as in females. The disease in this country is seen mostly in the upper Mississippi valley and the northwestern states, according to Sanford. It is contracted from cattle or horses, from other human beings or from infected grain. The fungus may be introduced through carious teeth, through the tonsils or lesions of the gums or directly into the skin by traumatism. The habit of chewing straws is thought to be occasionally the means of infection.

The fungus is present in the pus, though it is often difficult to find and may also be demonstrated in the tissues. It appears to the eye as tiny yellowish or whitish granules and under the microscope is seen to be made up of a central feltlike mass of mycelium and a fringe of radiating filaments ending in bulbous enlargements. Two species of the fungus are recognized, the *Actinomyces bovis* and *Israeli*. The former is an aërobic organism which is readily cultivated but cannot be inoculated in animals. The latter is an anaërobe which is cultivated with difficulty but which may be inoculated in guinea-pigs.

Diagnosis.—Actinomycosis may be suspected from the presence of groups of hard nodules with bluish areola, associated with fistulæ, ulcers, scars and seropurulent discharge. The disease with which it is most often confused is scrofuloderma. A positive diagnosis of actinomycosis can only be made by finding the fungus.

Treatment.—When the disease is localized, it may be radically removed by surgical methods. In other cases the chief reliance must be placed on the use of potassium iodid in large doses.

Prognosis.—This is good in the majority of cases when the disease is localized and has not invaded the viscera. If untreated it is eventually fatal from inanition or sepsis

BLASTOMYCOSIS

The disease known as blastomycosis or blastomycetic dermatitis is a yeast infection of which there are two types. The one occurring in America was first described by Gilchrist and is rare. It is decidedly so in childhood.

Symptoms.—The eruption begins as small acne-like papules or papulopustules which gradually enlarge by peripheral extension. Many of them become confluent and form patches varying in size from that of a small coin to that of a hand or larger. Papillomatous and warty growths appear on the surface, from which there is often a seropurulent discharge with subsequent formation of crusts. The most characteristic feature of the eruption is the border which is dull red, sloping, elevated from one to three-eighths of an inch and shows miliary abscesses. The latter appear as minute, yellowish points which are visible to the naked eye but are best seen with a hand glass. The causative organism is found in these lesions. Ulceration occurs eventually and is followed by scars which are smooth, soft, and sharply defined and only occasionally deforming. Scarring may also follow central involution of the lesions without any accompanying ulceration. As in the case of tuberculosis, there may be recurrences in the scars. The favorite sites are the face and hands, though the eruption may appear on almost any region. The lower eyelid is not infrequently affected. There is no accompanying adenopathy unless secondary infection is present. The subjective symptoms are mild and consist of slight pain or tenderness and there are no constitutional symptoms, the disease being confined to the skin. The systemic involvement which is occasionally seen in adults and which is rapidly fatal has not been observed in childhood. The course of the disease is chronic and relapses are frequent.

Etiology and Pathology.—Blastomycosis occurs in both sexes and is rare in childhood. It has been seen as early as the eighth month by Kessler. The disease is caused by the blastomyces, a yeast organism which probably enters the skin through a break in continuity. It is usually found without difficulty in the miliary abscesses and may be demonstrated microscopically or by culture. A simple microscopic preparation as in the case of ringworm fungus is made by placing a drop of pus on a slide with a few drops of 20 or 30 per cent caustic potash solution. The organism appears as a round or oval, double contoured and highly refractile body with granular protoplasm and occasional vacuoles. The average diameter is about 12 microns. It can be cultured and successfully inoculated in guinea-pigs.

The histologic picture is a granuloma with numerous miliary abscesses. Giant-cells are often present and may contain the blastomyces. The epidermis shows an extensive hyperplasia (acanthosis) with downward growths suggesting an epithelioma.

Diagnosis.—Blastomycosis simulates the verrucous type of skin tuberculosis most closely. The latter disease is, however, slower in growth and shows less tendency to moisture. In many cases the diagnosis can only be made by finding the organisms. Sporotrichosis is recognized by the chainlike formation of the lesions which follow the lymphatics. Bromoderma is differentiated by the history, by the presence of bromin in the urine and absence of organisms; syphilis by the Wassermann test and presence of other manifestations; deep pustular ringworm by microscopic examination and sarcoma by histologic examination.

Treatment.—The disease responds well to iodids in large doses and to the Roentgen rays. Both should be used in combination. Excision is proper for a circumscribed lesion.

Prognosis.—This is good in children as far as life is concerned. There is response to persistent treatment, though relapses are apt to occur.

SPOROTRICHOSIS

Sporotrichosis is a disease of world-wide distribution and one which is fairly common in certain parts of the United States. It occurs at any age but is more common in adults than in children. The first case in this country was recognized in 1898 by Schenck. It was later found to be prevalent in France where it has been thoroughly studied by deBeurmann and Gougerot. An excellent review of the entire subject has lately been written by H. R. Foerster.

Symptoms.—Sporotrichosis may affect all of the tissues of the body and is characterized by an extraordinary tendency to polymorphism which may be evident in a single lesion. Seven different types of the disease are described by Gougerot. The characteristic lesion is the gumma which first appears as a hard, painless, subcutaneous nodule, increasing to the size of a walnut or more and in the course of three to six weeks softening and breaking down in the center with the discharge of thick viscid pus. Such lesions are indolent as a rule and of the type of "cold abscesses." From the central necrosis a cup-like depression is formed with induration of the border. In other cases there is marked ulceration and the appearance of syphilitic or tuberculous ulcers is simulated. At times the ulceration is superficial and lesions simulating ecthyma are produced. The abscesses often show fistulous openings separated by narrow bridges of overlying skin. The course of individual lesions is slow, involution requiring weeks or several months. The scars which follow may be soft and smooth as in syphilis or irregularly banded and keloidal as in some forms of tuberculosis.

The type of the disease which is most often seen in the United States is localized and follows the course of the lymphatics. It usually begins on the hand or a finger and suggests a chancre, abscess, gumma or a papillomatous patch of tuberculosis verrucosa. After a number of weeks multiple subcutaneous gummata appear along the course of the lymphatics in an ascending manner. The lymphatic vessels may be felt as large hard cords and the glands may or may not be palpable. This type usually remains local and is rarely disseminated through the blood stream. Other unusual types consist of cutaneous lesions which may simulate blastomycosis, tuberculids, acne, epithelioma, eczema and pustular forms of ringworm. At times the mucous membrane of the mouth or pharynx shows ulcerative or vegetative lesions which are diffuse, rather superficial and have no false membrane. The disease may also involve the muscles, bones, joints and viscera and cause death. While the process is usually chronic, indolent and without constitutional symptoms, cases of acute or subacute febrile type are recorded.

Etiology and Pathology.—The disease occurs principally in adult males. Of one hundred cases in the United States in which age was mentioned, twenty were seen in children. Sporotrichosis in this country has been chiefly observed in the region of the Missouri River valley. It is caused by infection with some species of the sporothrix, a fungus which is widely distributed in nature as a saprophyte, though pathogenic to plants and lower animals. Infection usually takes place through a break in continuity of the skin from infected vegetable matter and rarely from animals. The fungus consists of mycelium and spores and may be readily cultivated on Sabouraud's medium. Unlike the yeast fungus of blastomycosis, it cannot, except with great difficulty, be demonstrated in direct microscopic preparations. Cultures appear in eight to twelve days as whitish growths which may later show convolutions and develop a chocolate brown or even blackish pigmentation which is characteristic. The rat is the most suitable animal for inoculation and often develops a characteristic orchitis. The fungus is difficult to demonstrate in human tissue but is easy in that of rats or mice. Histologically the process is a granuloma showing a polymorphism equal to that of its clinical appearance. In the same lesions there are changes that resemble syphilis, tuberculosis and pyogenic infection.

Diagnosis.—The disease is to be differentiated from tuberculosis, syphilis, blastomycosis, actinomycosis and infections due to pyogenic cocci. It should be suspected in chronic suppuration or granulomata, associated with multiple cutaneous or subcutaneous gummata along the line of the lymphatics, especially when the disease is protracted and does not yield to ordinary surgical treatment. In case of doubt a culture or animal inoculation should be made. Additional information may be obtained by agglutination, complement-fixation and percutaneous tests.

Treatment.—Potassium iodid is a specific and should be used in large doses and continued for some time after disappearance of the eruption. The Roentgen rays are also of benefit. In a single case under my care (an adult) the eruption disappeared almost entirely under the use of this agent alone. Surgical treatment by incision or curetting is harmful.

Prognosis.—This is good in the majority of cases. The eruption disappears under treatment in a few weeks to two or three months, though relapses may occur.

BIBLIOGRAPHY

Diseases Due to Fungi

Castellani, A., and Chalmers, A. J. Manual of Tropical Medicine, New York, Wm. Wood and Co., 1919.

Fox, H., and Anderson, J. B. H. Treatment of Ringworm of the Scalp by the Roentgen Rays. J. Am. M. Ass., Chicago, 1921, 77: 1302.

Greenwood, A. M. Report on Culture of Parasitic Fungi. Arch. Dermat. & Syph., Chicago, 1923, 8: 81.

MacKee, G. M. X-rays and Radium in the Treatment of Diseases of the Skin, Philadelphia, Lea & Febiger, 1927.

McCarthy, L. Contribution à l'étude des epidermomycoses avec presentation de six parasites nouveaux. Ann. de Dermat. et Syph., Paris, 1925, 6.

Ormsby, O. S., and Mitchell, J. H. Ringworm of the Hands and Feet. J. Am. M. Ass., Chicago, 1916, 67: 711.

Remer, J., and Witherbee, W. D. The Action of the Roentgen Ray in Plate, Pastille and Skin. Am. J. Roentgen., Detroit, 1917, 4: 303.

Sabouraud, R. Les Teignes, Paris, Masson et Cie, 1910.

Weidman, F. D. Dermatophytosis. The Newer Ringworm. J. Am. M. Ass,. Chicago, 1928, 90: 500.

White, C. J., and Greenwood, A. M. Epidermophytosis. J. Am. M. Ass., Chicago, 1921, 77: 1297.

Whitfield, A. A Note on Some Unusual Cases of Trichophytic Infection. Lancet, London, 1908, 2: 237.

Williams, C. M. The Enlarging Conception of Dermatophytosis. Arch. Dermat. & Syph., Chicago, 1927, 15: 451.

Actinomycosis

Leith, R. F. C. Actinomycosis of the Colon, Liver and Lung. Edinburgh Hosp. Rep., 1894, 2: 121.

Sanford, A. H. Distribution of Actinomycosis in the United States. J. Am. M. Ass., Chicago, 1923, 81: 655.

Sporotrichosis

Foerster, H. R. Sporotrichosis. Am. J. M. Sc., Philadelphia, 1924, 167: 54.

CHAPTER XI

DISEASES DUE TO PYOGENIC COCCI

GENERAL CONSIDERATIONS

The common pyogenic organisms, streptococci and staphylococci, are the primary causes of numerous skin diseases, though their rôle is often that of secondary invaders. Suppuration may also occur independently of pyogenic cocci, as in variola, after applications of croton oil, or from invasion of various bacilli and fungi.

Streptococcic Infections.—The importance of the streptococcus in diseases of the skin was first shown by Fehleisen, who proved it to be the cause of erysipelas. The researches of Sabouraud and others have shown that it may cause numerous other dermatoses. While streptococci look alike morphologically, they can be differentiated in culture by suitable carbohydrate media. The most important is the *Streptococcus pyogenes*. Unlike the staphylococcus, this organism is not present to any extent on the normal skin. If present it leads a saprophytic existence. It becomes pathogenic on entering the skin through a break in continuity which may be microscopic or macroscopic. It may reach the skin from a septic focus, such as periostitis, or be carried through the blood stream in septicemia.

The type of lesions caused by the streptococcus depends chiefly on their situation. If confined to the epidermis it may cause impetigo. When situated mainly in the lymphatics of the cutis and subcutaneous tissue, erysipelas may be the result, while if deep in the subcutaneous tissue it may produce suppurative cellulitis. The principal action of the streptococcus is to cause a serofibrinous exudate. It does not tend to attract leukocytes and form pus as does the staphylococcus. If leukocytes are present, they are usually due to secondary infection.

Staphylococcic Infections.—The rôle of the staphylococcus in diseases of the skin is somewhat less important than was formerly supposed. Numerous affections formerly thought to be of staphylococcic origin are now known to be due to the streptococcus. Staphylococci are invariably present on the normal skin especially in the flexures, about the hair-follicles and in large sebaceous glands of the nose, chest and back. They are harmless as a rule but may become pathogenic when the patient's resistance is lowered. The clinical type of skin disease due to staphylococci depends on their virulence rather than special strains of the organisms, on the resistence of the tissue and particularly the region of the body which is attacked. The important types are the staphyloccus pyogenes aureus and albus, the former producing the more acute and severe lesions.

IMPETIGO CONTAGIOSA

The word impetigo, from the Latin, *impetere,* to attack, was applied in the early days of dermatology to various pustular eruptions. Tilbury Fox in 1862 identified the type known as impetigo contagiosa and Bockhart later described the superficial follicular type.

Symptoms.—The disease is of importance on account of its great frequency in children and because of its varying clinical appearance. In the great majority of cases it is comparatively harmless, in spite of its frequently ugly or at times formidable appearance. The essential lesion is a clear vesicle or bulla which is usually flaccid and situated on a pinkish base. The vesicle soon becomes pustular from secondary invasion of staphylococci. It ruptures easily as its roof is thin and delicate, and its contents dry and form the characteristic flat, amber-colored, friable crusts which have been described as being "stuck on the skin." The color of the crusts is, however, often deep-yellowish or greenish or may be blackish from admixture with blood. On removal of the crusts a red, glazed, dry or oozing surface is exposed, depending on whether or not the process is active or is undergoing involution. The lesions are few in number as a rule, though at times they are profuse. They vary in size from a split pea to a silver dollar, the average being smaller than a dime. The disease is seen chiefly on the exposed parts, the face, scalp and hands. Favorite locations are the chin, cheeks and nostrils and lateral nail folds. Impetigo of the scalp, especially of the occipital region and nape of the neck, is an invariable sequel of untreated pediculosis. Occasionally the mucous membranes of the mouth and vagina may be attacked. Montgomery records cases involving the lips, mouth, throat and conjunctiva. Regional adenopathy is common and in rare instances suppuration has been observed. Streptococcic infection of the lips, known as perleche, and phlyctenular conjunctivitis may be associated with impetigo. The latter disease does not cause any appreciable subjective symptoms, and only in severe cases of the bullous type are there any constitutional symptoms.

The course of the disease when untreated is rather indefinite. This is especially true when some underlying process such as eczema or pediculosis is not recognized. Individual lesions run their course in a week or two, but as the disease is auto-inoculable it may continue for a long period. The lesions eventually disappear without a trace, although some redness or slight pigmentation often remains temporarily.

Varieties.—Impetigo contagiosa may occasionally assume a circinate form or produce gyrate patterns from the coalescence of two or more circles. Such a type does not differ materially from the classic one.

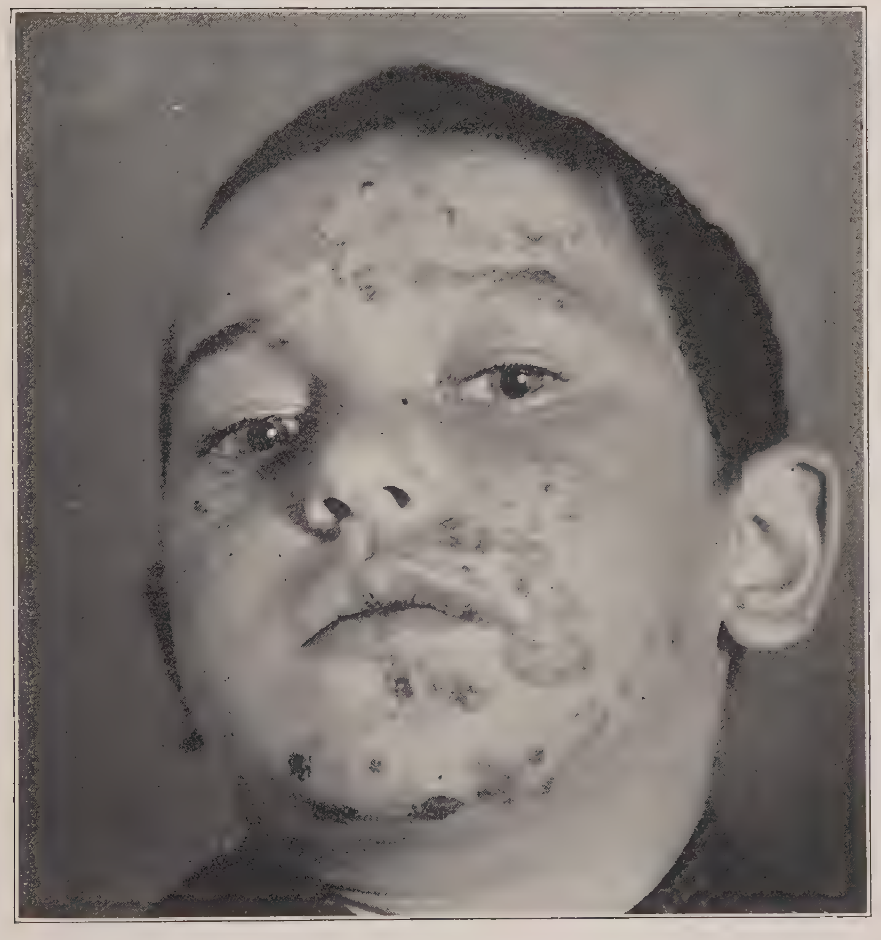

Fig. 67.—Impetigo Contagiosa.
Eruption of short duration and fairly profuse. Lesions mostly discrete.

The eruption in infants may assume the bullous form, known as pemphigus neonatorum (to be described later). Bullous impetigo may also appear in older children after vaccination or without apparent cause. The latter type of the eruption has been described by Manson as occurring in tropical climates. It is certainly rare in this country.

A form of intertrigo occurring on the flexor surfaces is regarded as a variety of impetigo. Due to maceration, the usual crusts are absent but at the border of the affected areas impetiginous vesicles may be observed.

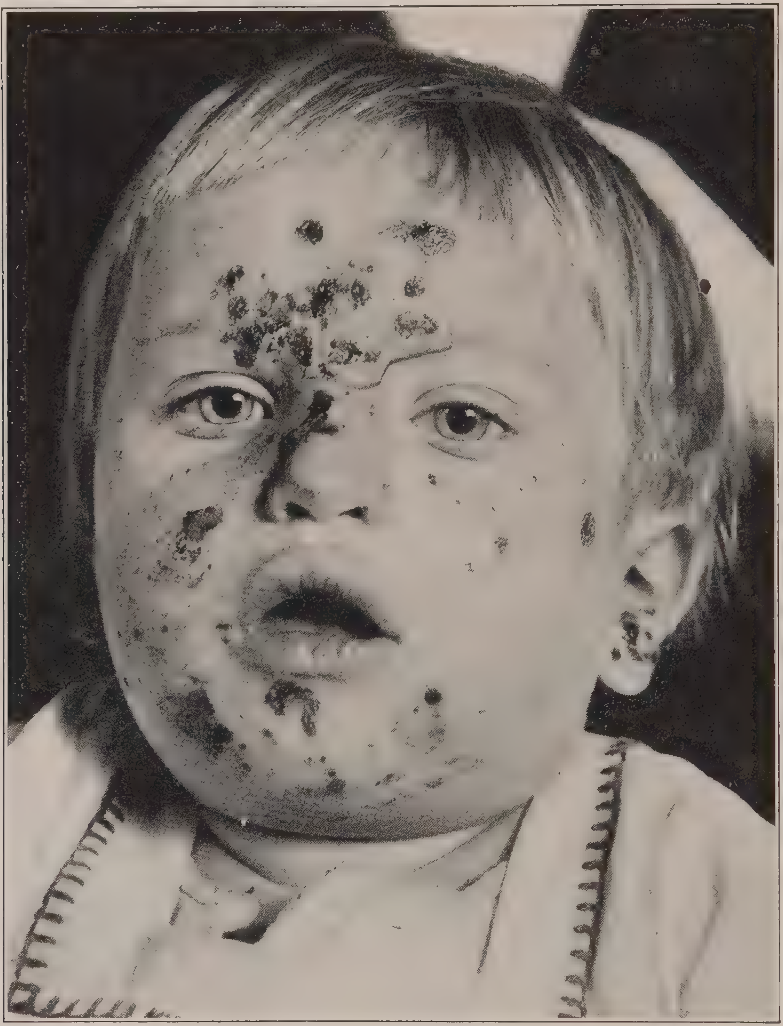

Fig. 68.—Impetigo Contagiosa.

An abortive type of the disease has been described as furfuraceous impetigo. This shows slight evidence of inflammation and consists of ill-defined patches with branny scales occurring especially on the face of children. The eruption is inconspicuous and often unrecognized. It is thought to be due to streptococci of a low grade of virulence.

Etiology and Pathology.—Impetigo contagiosa is largely an affection of infancy and childhood. It is seen in all classes of society but is much more prevalent among poor and uncleanly children. It occurs frequently in epidemics in schools or other institutions for children. It may follow vaccination or varicella. The disease is both hetero- and auto-inoculable and is easily carried from one child to another. Infection is often spread by the finger nails in scratching and is a frequent complication of pediculosis, scabies, eczema and other pruritic diseases.

There is still some difference of opinion about causative organisms, some thinking that the disease may be due to either streptococci or staphylococci. The evidence, I think, conclusively favors the streptococcus as the primary cause, the staphylococcus being a secondary invader.

The histologic structure of impetigo contagiosa in the early stage shows a unilocular vesicle whose roof is the horny layer and whose base is the upper part of the prickle cell layer. The contents are serum, with nuclei of polymorphonuclear leukocytes and streptococci. Staphylococci appear later. The upper part of the cutis shows slight evidence of inflammation.

Diagnosis.—The classic form of impetigo contagiosa is easy to recognize by the superficial amber colored crusts with possibly a few early vesicles, the raw surface on removal of the crusts, the lack of subjective and constitutional symptoms and the history of infection. Eczema is most often confused with impetigo. The patches of eczema are of longer duration, more deeply infiltrated and are apt to be larger and less well defined; they show more evidence of oozing, invariably cause itching and give no history of contagion. In varicella the lesions are discrete and more or less symmetrical; they are smaller, more uniform in size than those of impetigo and are partly umbilicated; the crusting is insignificant and some constitutional symptoms are present. In ecthyma the crusts are larger and thicker, the inflammatory reaction is greater than in impetigo and ulceration beneath the crusts is frequent. Pemphigus is differentiated from the bullous form of impetigo contagiosa by the appearance of lesions arising from normal skin in successive crops, by impairment of general health and by eosinophilia. Cultures of the contents of the bullæ are sterile. Herpes simplex consists of one or more small groups of pinhead vesicles which are discrete at the outset and cause some burning and itching. Impetigo contagiosa occurring in circles may be mistaken for ringworm. The border of the former shows the glazed raw surface of the rete on removal of the crusts, and the fungus is absent on microscopic examination. In the accompanying illustration (Fig. 69) a case is shown in which the clinical diagnosis was doubtful. On microscopic examination no fungus was found, while cultures showed the presence of streptococci, confirming the diagnosis of impetigo.

Treatment.—The treatment of impetigo contagiosa is simple. Its object is to remove the crusts and to destroy the organisms by the application of a suitable parasiticide. Crusts may be removed by warm water and soap or by warm olive oil to which 3 per cent of salicylic acid has been added. When crusts are large and numerous, as in severe cases of pediculosis of the scalp, the oil may be applied and covered by oiled silk or by an ordinary rubber bathing cap. One of the most satisfactory

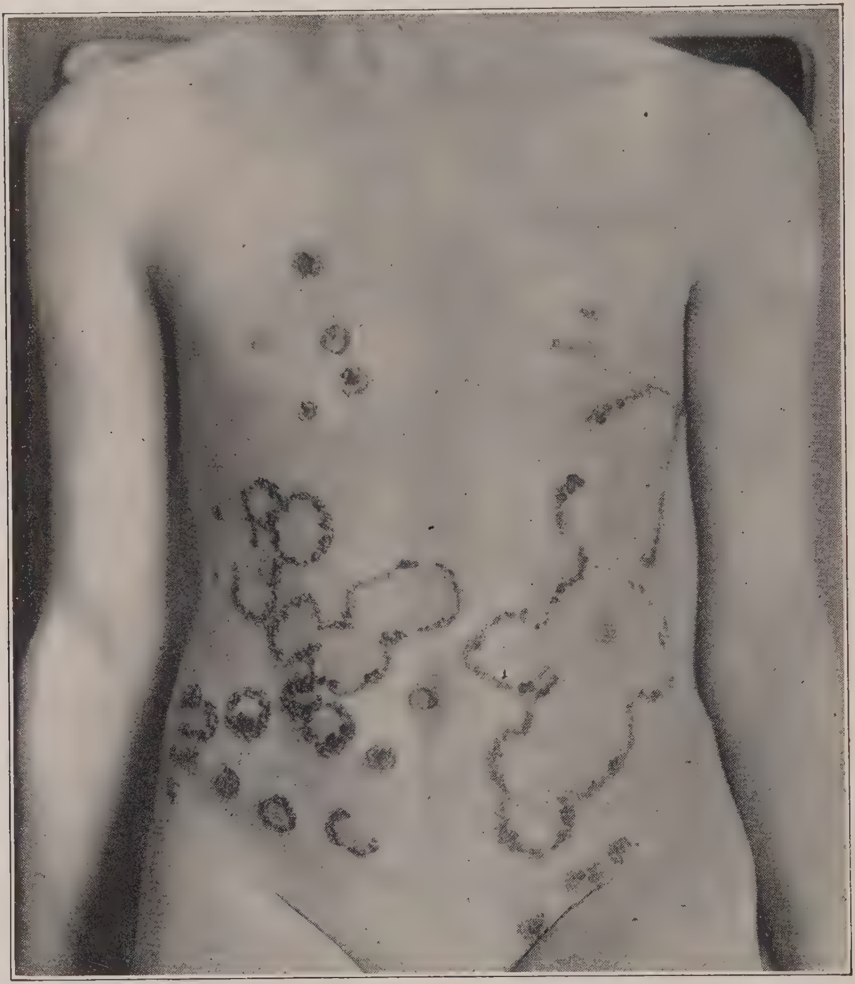

FIG. 69.—IMPETIGO CONTAGIOSA SHOWING UNCOMMON CIRCINATE TYPE.
Suggests appearance of ringworm. No fungus found. Pure culture of streptococcus obtained.

parasiticidal remedies is ammoniated mercury ointment, which is widely used for this disease. In the majority of cases all that is needed is the application, twice daily, of the ointment to all of the patches. The ointment softens and removes the crusts and then attacks the causative organisms. In rare cases which do not respond to this treatment, the patches may be painted with a 5 per cent silver nitrate solution. The only difficult cases to treat are those in which continual scratching is due to some cause

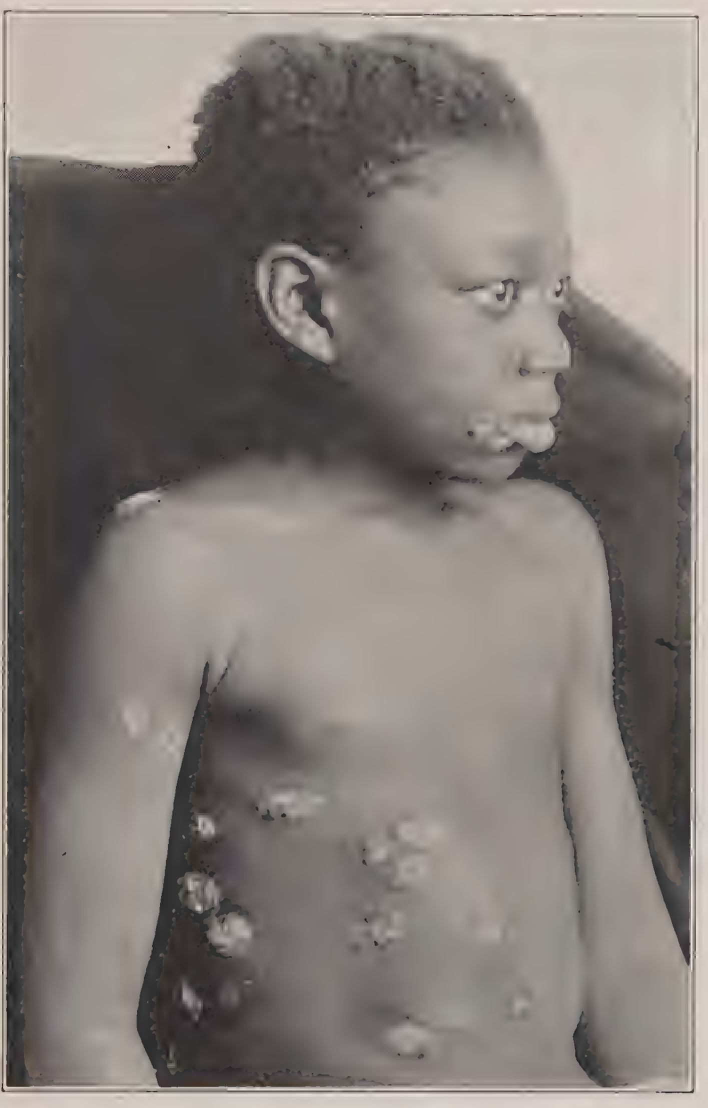

Fig. 70.—Impetigo.
Probably mixed infection of streptococcus and staphylococcus.

which cannot be discovered or removed. In the bullous type of the disease the bullæ should be opened aseptically and wet dressings of boric acid applied for a day or so. When there is extensive denudation of epidermis it is not advisable to use the ammoniated mercury salve. In such cases two per cent resorcin as suggested by Foerster may be substituted.

Prognosis.—This is excellent as the disease responds most favorably to treatment.

ECTHYMA

The affection known as ecthyma (from the Greek *to break out*) was first described in 1817 by Bateman, one of the English pioneers in dermatology.

Symptoms.—The eruption begins as vesicles, which quickly become pustules. The latter are situated on an inflamed base and soon dry to form thick, dirty-looking flat crusts of the average size of a finger nail. Beneath the crusts there is more or less superficial ulceration, which, after healing, shows a tendency to scarring and rather persistent pigmentation. The lesions are seen most often on the lower extremities and buttocks and are usually few in number (seldom more than a dozen). Subjective symptoms are limited to a mild burning sensation. There are no constitutional disturbances. Individual lesions complete their evolution in three to four weeks. When the patient's resistence is poor, the process may be rather protracted.

Etiology.—Ecthyma is generally considered to be an ulcerative variety of impetigo contagiosa, many patients presenting both types of eruption simultaneously. It is thought by many to be of streptococcic origin, though it must be admitted that staphylococci are regularly present and may also be causative. The disease occurs in both children and adults who are in poor general health or at least have lessened resistance to pyogenic infections. Like impetigo it is seen most frequently in the poorer classes of society.

Diagnosis.—The differentiation from impetigo has been considered under that disease. Ecthyma may be mistaken for a pustular syphilid. The latter usually shows induration, deeper ulceration and other evidences of syphilis may be present.

Treatment.—This is similar to that of impetigo.

PEMPHIGUS NEONATORUM

The disease known as pemphigus neonatorum is poorly named as it has no relationship to ordinary pemphigus. The term pemphigoid of

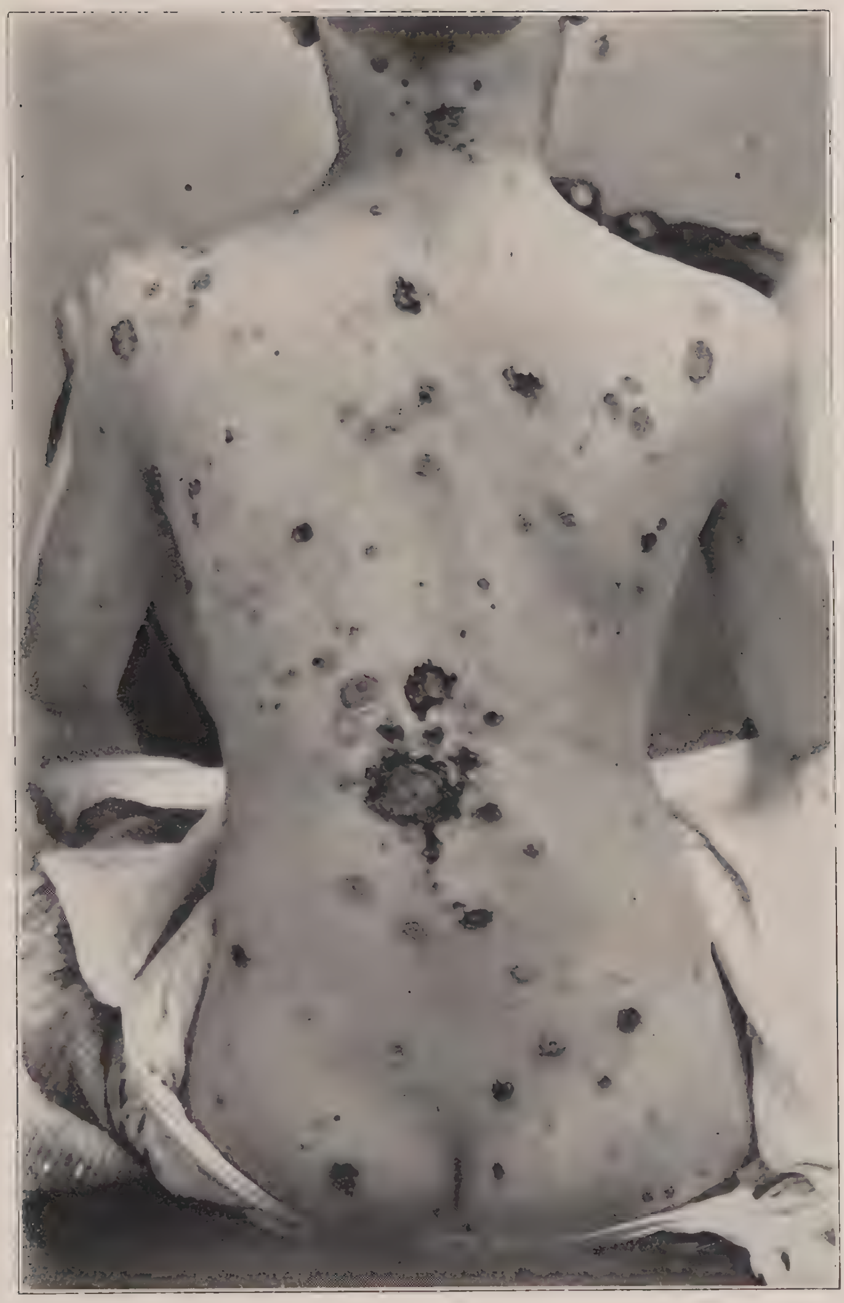

FIG. 71.—ECTHYMA.

Extensive eruption with some thick crusts. Will probably be followed by moderate scarring.

the newborn, suggested by Jadassohn, is more appropriate. It is, in fact, a form of contagious impetigo. In former years when the importance of sepsis was not so well understood the disease was much more common and severe epidemics were not infrequent.

Symptoms.—The eruption first appears, as a rule, a few days or occasionally a few weeks after birth. It occurs suddenly as tense vesicles or bullæ on an erythematous base which soon enlarge and become flaccid. The contents are clear at first but quickly become turbid. The lesions appear in crops, rupture easily, leaving raw surfaces with a fringe of epidermis undermined with serum. They may be few in number or numerous and through coalescence involve the greater part of the skin and even include the mucous membranes. The palms, soles and scalp usually remain unaffected. The favorite sites are the back, buttocks and thighs.

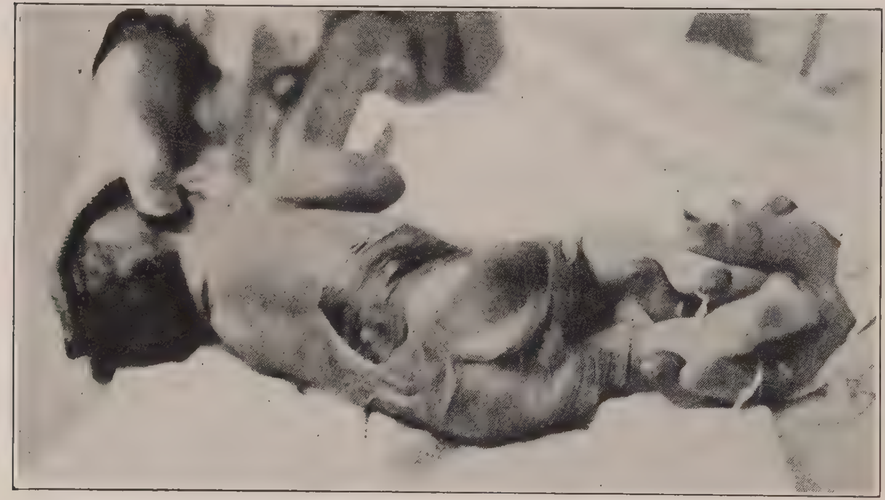

Fig. 72.—Pemphigus Neonatorum.
(Courtesy of Dr. Hans J. Schwartz.)

Constitutional symptoms are absent in the mild cases and this may also be true of some of the extensive and rapidly fatal types. In some of the severe cases, possibly through superadded infection, vomiting, diarrhea, dyspnea and cyanosis may be present. The disease may also be complicated by abscesses, ulceration or gangrene. The duration varies from one to three weeks on an average and in favorable cases the eruption disappears without any permanent trace. The disease is auto-inoculable and extremely contagious to other infants.

Etiology.—Pemphigus neonatorum may occur as a sporadic infection or in epidemic form in obstetric wards of hospitals, in foundling asylums and in the practices of midwives. Epidemics in this country have been reported by Schwartz, Cole and Ruh, Knowles and Munson and others. Cases of infection have been traced to adults or children with ordinary impetigo contagiosa and vice versa, pemphigus neonatorum has been the source of impetigo in adults. These facts would seem to prove the identity or at least close relationship of the two diseases. Pemphigus neonatorum is conveyed not only directly from one individual to another but indirectly as well, through clothing, towels or feeding utensils. In a maternity ward it presents a problem of the greatest importance on account of its great contagiousness and at times high mortality rate. There is a difference of opinion regarding the causative organism, some being convinced that the disease is due to streptococci, while others consider staphylococci responsible. Foerster says that "at the present time it appears impossible to bring any one organism into causal relation with the disease."

Diagnosis.—In an isolated sporadic case a number of diseases of the skin may need to be considered in the differential diagnosis. Congenital syphilis is not infrequently manifested by bullæ which, however, are seen most often on the palms and soles, regions which are rarely affected by pemphigus neonatorum. Other evidence of syphilis would be present such as macules, papules, snuffles, enlargement of the liver and spleen, or positive Wassermann test. A bullous eruption due to iodids, bullous erythema multiforme and epidermolysis bullosa may also require differentiation. Iodid eruption may be excluded by the history. Erythema multiforme presents other lesions in addition to bullæ and epidermolysis bullosa may show characteristic nail changes. In the presence of an epidemic, the extreme contagiousness of the disease would quickly confirm the diagnosis.

Treatment.—Local treatment consists in opening the bullæ, wiping away serum and taking pains to avoid contamination of the surrounding skin. An ointment of 1 or 2 per cent ammoniated mercury or one containing 6 per cent each of boric acid and precipitated sulphur may then be applied. "Still more important than any one formula of medication," Blaisdell writes, "is the gentle but thorough removal of the accumulations of exudate with soap from a tube, water and sterile gauze, two or three times a day. Removal should not be considered as successful until a red and oozing surface is revealed." Some advocate extensive dusting of talcum over the body or the use of baths containing permanganate of potash. To lessen the chance of septicemia an occlusive sterile dressing should be applied to the umbilicus. In the severe cases general supportive treatment is indicated. Antistreptococcic serum has not given satisfactory results. Cole and Ruh recommend autogenous vaccines for all cases.

The treatment of the individual patient is simple compared with the general management of an epidemic in a maternity hospital. This requires the strictest attention to aseptic precautions and an increase in the nursing staff. All infected cases must be isolated and other infants who have come in contact with them must also be isolated and kept under observation. At the end of the epidemic the ward should be most thoroughly cleansed. The technic of managing such an epidemic is described in detail by Blaisdell. Cole and Ruh think that pemphigus neonatorum should be included in the reportable diseases on account of its epidemic tendency and high mortality.

Prognosis.—This is favorable as to life in the majority of cases, recovery being complete. When the eruption is extensive, death may occur.

ERYSIPELAS

Erysipelas (from the Greek word meaning red skin) is seen most often in adult males. It occurs infrequently in infants and is rare in childhood.

Symptoms.—There may be prodromal symptoms lasting a few hours to a day or two which consist of general pains, anorexia, nausea and at times vomiting and chilliness. The eruption appears first as a reddish patch increasing by peripheral extension or at times by coalescence with other similar patches. The lesions are bright red at the outset, smooth and shiny and show characteristic sharply demarcated and slightly elevated border. Vesicles or bullæ may appear on the reddish areas and in severe cases they may become hemorrhagic or even gangrenous. Lymphangitis may be seen on the extremities and the lymphatics feel like hard cords. There may be marked edema of the loose tissue about the eyes and scrotum. The lesions are firm to the touch, frequently more or less tender and may cause burning and itching of a slight degree. The disease occurs frequently on the face where it is apt to be mild and is also seen on the trunk and extremities and occasionally it involves the mucous membranes. On the face it often stops abruptly at the border of the scalp. Constitutional symptoms are always present, fever being continuous, with evening elevation. Severe cases at times involve the deep subcutaneous tissue causing cellulitis and abscess. The severest cases show gangrene or general sepsis, involving the meninges, kidneys and lungs with delirium, stupor and death.

Course.—The process increases as a rule for a week when its maximum is reached, remains stationary for a day or so and then subsides either gradually or more or less suddenly. The color changes to brownish, then yellowish, followed by more or less desquamation. The skin eventually becomes normal. Relapses are not common, after the disease has apparently subsided. Erysipelas in infants is severe and is apt to result fatally.

Etiology and Pathology.—The infection takes place through wounds, abrasions or fissures or may arise in the mucous membrane of the nose or mouth or some deep septic focus. The process is a serofibrinous inflammation of the cutis which may end in necrosis and is due to the *Streptococcus pyogenes.*

Diagnosis.—Acute eczema of internal origin or dermatitis due to poison ivy or other irritant may cause erythematovesicular lesions with marked edema which closely simulates erysipelas. The border of the patches, however, is not sharply demarcated as in the latter and constitutional symptoms are absent. The presence of a rise of temperature of several degrees strongly favors erysipelas while it is positively excluded by a normal temperature.

Treatment.—As erysipelas is a self-limited disease with a comparatively short course, it is difficult to estimate the value of any treatment, whether local or constitutional. Nothing is better, in my opinion to lessen acute inflammation of the skin than cold wet dressings of boric acid. This applies as well to erysipelas as to any other acute dermatitis. I have never been convinced of any specific action of ichthyol in erysipelas much as it has been and still is used for this disease. Attempts have been made to limit the spread of erysipelas by painting the skin near the border of the patches with silver nitrate or iodin. The theoretical object was to produce an inflammatory reaction and to increase the number of leukocytes which would supposedly have a phagocytic action. It is doubtful if this is of any practical value. From the recent reports of Birkhaug and of Symmers and Lewis, it would seem that good results may be obtained from the use of antistreptococcus serum. Guy reported favorable action in 75 per cent of adult cases from a polyvalent antistreptococcus vaccine.

Prognosis.—This is always grave in infants, many of whom die. In older children it is more favorable.

ERYSIPELOID

Erysipeloid is an uncommon and little known disease which has no relationship whatever to erysipelas. It has been called crab cellulitis and erythema serpens, and was first recognized in 1873. Although not probably due to pyogenic cocci it is convenient to consider it in this chapter.

Symptoms.—The disease appears as dusky, reddish, smooth, sharply demarcated patches, which are seen most frequently on the fingers and knuckles. It spreads in a serpiginous manner and disappears spontaneously in a few weeks, leaving the skin entirely normal. It causes a mild sensation of burning or itching but no constitutional symptoms. The affected areas feel warm to the touch.

Etiology.—The disease is seen chiefly in adults who handle sea food, but may occur in children as well. It is common in the region of Chesapeake Bay and results from contact with crabs, the virus being introduced through some wound or abrasion. The German bacteriologist, Rosenbach, found an organism belonging to the order of cladothrix, which he considered causative. Gilchrist, however, from a study of 239 cases found no organisms and thought the disease was due to a ferment introduced by crab bites.

Treatment.—Ordinary antiseptic lotions are frequently used, though their value is questionable as the disease runs a comparatively short and self-limited course. Gilchrist stated that in his cases the eruption disappeared in a few days from the use of a 25 per cent salicylic acid plaster.

FOLLICULAR IMPETIGO

Follicular impetigo was first described by Bockhart with whose name it is generally associated. It is a fairly common affection of infancy and childhood.

Symptoms.—The disease begins as red specks or slightly raised papules at the follicular orifices, the central portion being often pierced by a hair. There is no vesicular stage as in impetigo contagiosa, but the lesions become frankly pustular in a day or two and, drying, form superficial small yellowish crusts. It is common on the extensor surfaces but may occur on any part of the skin. The lesions are often seen in the neighborhood of boils, abscesses or rather suppurations and at the border of eczematous patches. In children especially it occurs on the scalp and in this location may follow an epilation caused by the Roentgen rays. The eruption may appear after miliaria or where there has been profuse sweating. At times the disease may be the starting point of more deeply seated or extensive pyogenic infections.

Etiology and Pathology.—The disease is caused by either the *Staphylococcus albus* or *aureus*. It is a superficial perifolliculitis, involving the upper third of the pilosebaceous follicle. The roof of the pustule consists usually of the horny layer of the epidermis, the floor being formed by the lower part of the prickle cell layer or the cutis when the destruction is severe.

Treatment.—This is simple in most cases and consists in removal of crusts with the application of 3 to 5 per cent ammoniated mercury ointment. In undernourished infants or children the response to treatment may be slow. This has been my experience in eruptions following Roentgen ray epilations.

FURUNCULOSIS

A furuncle or boil is a circumscribed perifolliculitis situated more deeply than follicular impetigo, above described.

Symptoms.—A furuncle begins as a small, hard lump in the skin and subcutaneous tissue, the surface of which is bright red. It increases in size for three to six days, becomes more and more acuminate and finally breaks through the skin with discharge of greenish-yellow pus and a tough, necrotic "core." The lesion heals in ten days to two weeks and as a rule there is some scarring. The latter is often well marked and at times keloidal and rather disfiguring. Boils are seen most frequently on the face, nape of the neck, buttocks and moist surfaces such as the axillæ and groins. Pain and tenderness are always present. The severity of the pain depends largely on the location, being greater where the tissues are dense such as the nose and external auditory canal. There may be associated pain and enlargement of the lymphatics. In the neighborhood of boils the smaller lesions of follicular impetigo may be present. The so-called "blind boil" represents a process which is not severe enough to cause central necrosis. Such a lesion persists at times for weeks. While boils usually involve the pilosebaceous follicles, they may originate in the sweat-glands, a condition described by Verneuil as hydroadenitis destruens suppurativa. These lesions are often associated with hyperidrosis, especially of the axillæ and are very painful as a rule. There are no constitutional symptoms due to boils unless the lesions are numerous or the course protracted.

In many cases there is only a single lesion. In others there may be a succession of boils near one another or at widely separated points (furunculosis). The disease tends to spontaneous cure, though at times it may be greatly protracted unless proper treatment is instituted.

Etiology and Pathology.—General predisposing causes include lowered resistance from anemia, nephritis and especially diabetes or hyperglycemia. Boils may occur, however, in the most athletic and apparently healthy persons. Local predisposing causes are moisture, friction and pruritic diseases such as eczema, pediculosis or scabies. The actual cause is the staphylococcus and in almost every case the variety is the *Staphylococcus aureus*. In my experience this organism has been invariably obtained by cultures.

The histopathologic changes are similar to but more severe than those of Bockhart's impetigo. There is vascular dilation, edema and rapid invasion of polymorphonuclear leukocytes and in chronic cases plasma and multinucleated cells. This cellular mass is non-vascular and easily breaks down to form the central necrotic plug or "core."

Treatment.—General treatment is indicated if diabetes, hyperglycemia or anemia are present. In every case of furunculosis the urine should be examined for sugar. Chemical examination of the blood for sugar is not necessary as a routine. It is advisable, however, to put the patient on a restricted carbohydrate diet. Any local cause of itching should receive suitable attention.

The abortive treatment of boils is usually unsuccessful, the simplest method being cold compresses of boric acid or alcohol. Other methods include painting with iodin, injection of a few drops of phenol, irradiation with quartz lamps and kaolin cataplasms. If pain is intense poultices may be applied.

Surgical treatment of a boil which has softened, consists in incision with a fine knife, a convenient instrument being the type used for operations on the eye. Wide incisions are unnecessary and increase the chance of scarring. A wet dressing of boric acid or dilute alcohol may then be applied. The surrounding skin should always be kept as surgically clean as possible as boils are auto-inoculable. For this purpose tincture of green soap, alcohol or a solution of bichlorid of mercury may be used.

Vaccines, in my opinion, are of the greatest value in the treatment of furunculosis. In fact, there is no other disease of the skin which, in my experience, gives satisfactory results with vaccine therapy. In the majority of cases equally good results may be obtained with stock as with autogenous vaccines. The usual errors in technic which account for some of the failures are too large and especially too frequent dosage. The injections should be given every five days, always beginning with a small dose (less than fifty million killed organisms). The dosage can then be increased by one hundred million at each successive treatment until eight hundred million or more are given. From six to twelve or more injections should be given according to the severity of the disease. If relapses occur the treatment may be resumed.

Neither yeast nor calcium sulphid are, in my opinion, of any particular value. I have had no personal experience with either colloidal manganese or the French preparation stanoxyl (oxid of tin).

Prognosis.—This is favorable as individual lesions disappear spontaneously, though often leaving scars. A succession of boils invariably yields to vaccine treatment.

MULTIPLE ABSCESSES OF INFANTS

Symptoms.—In undernourished infants, multiple abscesses of the skin may appear which vary in size from a split pea to a cherry or larger. Some involve the skin alone and are bright red at first, later becoming dusky in color. Others are deep seated with normal overlying skin and may often be felt before they are visible. The lesions may be numerous and affect any part of the cutaneous surface, the favorite locations being the occipital region, back and buttocks. They appear in crops and are practically painless. They soften and rupture, discharging yellowish-green contents of nauseating odor. Ulcers and fistulæ may follow or the disease may be complicated by lymphangitis and suppurative adenitis. There is little or no accompanying fever. Recovery follows in the majority of cases though some of the patients die from exhaustion or intercurrent disease.

Etiology.—The disease is seen mostly in hospital practice in infants who have been improperly fed or have lived under bad hygienic conditions. It may follow an attack of pneumonia. The exciting cause is the staphylococcus which is generally considered to enter the skin from without, either through the pilosebaceous follicles or sweat ducts.

Diagnosis.—The lesions are to be distinguished chiefly from cold abscesses of tuberculosis or possibly from syphilitic gumma. Cold abscesses are accompanied by other signs of tuberculosis. Gummata are unusual in infants and if present are associated with other unmistakable evidence of syphilis.

Treatment.—The abscesses should be incised and drained, care being taken not to contaminate the surrounding skin as the disease is autoinoculable. Before opening the lesions, a permanganate bath is advisable. The lesions should be surgically dressed and the surrounding skin kept dry with a generous amount of talcum or other bland dusting powder. In obstinate cases, autogenous vaccines may be used.

Prognosis.—This is usually favorable, though death may occur.

DERMATITIS VEGETANS

The uncommon affection known in this country as dermatitis vegetans is occasionally seen in infants and children. Such cases are recorded by Corlett, Wende and De Groat and Baum (illustration in Sutton's textbook).

Symptoms.—The disease is said to arise spontaneously but is almost always secondary to eczema or other forms of dermatitis. It begins as papulopustules which extend peripherally or coalesce and form flattened scaly or crusted elevations. Underneath the crusts are numerous miliary pustules, especially at the periphery. In Wende and De Groat's cases the lesions varied in size from a pea to a walnut or larger, while in some of the adult cases extensive diffuse areas have been observed. The eruption is seen most often in the genitocrural region though it may occur on the face or other parts. There are no appreciable subjective or constitutional symptoms.

Etiology.—The disease is generally considered to be a secondary vegetating process, due to infection with pyogenic cocci.

Diagnosis.—Bromoderma is closely simulated and the differentiation may be only possible from the history or examination of the urine for bromin. There is usually a history of preceding skin disease such as eczema, seborrheic eczema, impetigo or other inflammatory disease. Pemphigus vegetans is differentiated by the greater extent and severity of the disease and its eventually fatal outcome.

Treatment.—Cleanliness and the application of antiseptic lotions or ointments usually effect a rapid cure. If untreated the disease may persist for months or even years and may be followed by moderate scarring.

GRANULOMA PYOGENICUM

The disease was originally described as botriomycosis hominis. The supposed organisms, botriomyces, were later found to be clumps of staphylococci and the term granuloma pyogenicum is now generally used by American and English authors.

Symptoms.—The disease appears as a pea-sized, flat or hemispherical, elastic elevation of the skin which is often more or less pedunculated. The color is usually bright red or may be of a purplish hue. The surface is smooth as a rule and often moist. Usually only a single lesion is present. The disease may occur on any part of the skin and also on the mucous membrane. It is most frequently seen on the face or hands, doubtless due to greater opportunities for traumatism and infection. A characteristic symptom is the marked tendency to bleeding after traumatism. The lesion tends to increase slowly in size until it has reached that of a hazel nut. It then remains indefinitely without change. Another characteristic feature is the tendency to rapid recurrence after removal unless this is followed by cauterization.

Etiology and Pathology.—Granuloma pyogenicum is seen chiefly in adults though it may occur in both infants and children, Wile having observed the disease in an infant of two months. It is apparently due to infection with *Staphylococcus aureus,* entering the skin through a wound or abrasion. These organisms have been found both by culture and in sections.

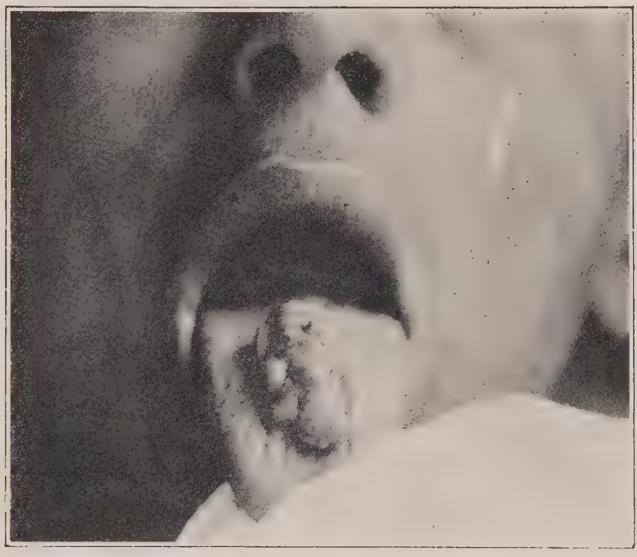

Fig. 73.—Granuloma Pyogenicum.
Lesion of large size, bleeding easily from traumatism.

The histologic picture is essentially that of granulation tissue, showing hyperplasia of connective tissue and many newly formed blood-vessels. The vascular dilatation is great at times and simulates angioma. By some the disease is called granuloma telangiectaticum. Other changes consist of diffuse infiltration of connective tissue cells, polymorphonuclear leukocytes and a few plasma- and mast-cells.

Diagnosis.—The disease is often unrecognized by those who are not familiar with skin diseases, the possibility of sarcoma being often suspected. The history of previous traumatism, the reddish color, frequent pedunculation and tendency to bleed and to recur after removal should make the diagnosis clear.

Treatment.—The lesion may be easily excised by the knife or preferably by the actual cautery. The base should then be thoroughly cauterized or prompt recurrence will take place. As a caustic, silver nitrate is entirely satisfactory.

Prognosis.—The disease is essentially harmless though it tends to persist indefinitely when untreated. Complete recovery follows proper treatment.

DERMATITIS GANGRENOSA INFANTUM

The disease was originally described by Jonathan Hutchinson as a complication of varicella or vaccinia. It may, however, follow other diseases or appear spontaneously.

Symptoms.—In the recorded cases of this rare affection there are great variations in the clinical appearance. The eruption may begin as erythematous, urticarial or purpuric spots or as pustules or bullæ. It soon becomes pustular, if it is not so at the outset, and necrosis occurs beneath the pustules. After separation of sloughs, round or oval punched-out ulcers of various sizes remain which frequently coalesce and form large areas. They may extend deeply, like noma, as far as the bones and even involve them. The eruption may be sparse or at times profuse. When the ulcers follow varicella, they occupy the usual situations of that disease. When they arise spontaneously they are found most often on the buttocks and trunk. Constitutional symptoms vary with the severity of the case. In those with numerous, deep-seated ulcers, there are vomiting, chills and high fever during the active course of the disease. In the cases which recover, healing takes place rapidly with more or less deforming scars. The disease runs its course as a rule in two to four weeks. Death occurs frequently in the extensive and severe cases.

Etiology and Pathology.—The disease occurs in debilitated infants and young children under three years, especially of the female sex. It may follow varicella, vaccinia, measles or purpura or appear without apparent cause. Many organisms have been found in the lesions but none have been definitely proven to be causative. Some of those which have been identified are pyogenic cocci, *Bacillus pyocyaneus,* bacillus of diphtheria and *Bacillus ramosus.*

Diagnosis.—Congenital syphilis is the only disease to be considered in the diagnosis. The possible history of a preceding exanthem, the presence of constitutional symptoms and absence of other signs or symptoms of syphilis are sufficient to differentiate the two affections.

Treatment.—General treatment should be supportive. The local treatment is similar to that of ecthyma.

Prognosis.—This is always grave as the disease is frequently fatal. Recovery is followed by scarring.

BIBLIOGRAPHY

Impetigo Contagiosa

Manson, P. Tropical Diseases, 1898, p. 565.

Montgomery, D. W. The Determination of Impetigo Contagiosa to the Mucous Membranes. J. Cutan. Dis., New York, 28:445.

Pemphigus Neonatorum

Blaisdell, J. H. The Management of Impetigo Contagiosa in Maternity Hospitals. J. Am. M. Ass., Chicago, 1924, 83:833.

Cole, H. N., and Ruh, H. O. Pemphigoid of the New Born (Pemphigus Neonatorum) with Report of an Epidemic. J. Am. M. Ass., Chicago, 1914, 63:1159.

Foerster, O. H. Pemphigus Neonatorum, or Bullous Impetigo Contagiosa of the New Born. J. Am. M. Ass., Chicago, 1909, 53:358.

Knowles, F. C., and Munson, H. G. Institutional Epidemics of Bullous Impetigo Contagiosa in Infants. Arch. Dermat. & Syph., Chicago, 1923, 7:376.

Schwartz, H. J. Bull. Lying-in Hosp., New York, 1908, 5:1.

Erysipelas

Birkhaug, K. E. Erysipelas. J. Am. M. Ass, Chicago, 1926, 86:1411.

Guy, W. H. Treatment of Erysipelas. J. Cutan. Dis, New York, 1919, 37:399.

Symmers, D., and Lewis, K. M. The Antitoxin Treatment of Erysipelas. J. Am. M. Ass., Chicago, 1927, 89:88.

Erysipeloid

Gilchrist, T. C. Erysipeloid with a Record of 329 Cases of Which 323 Were Caused by Crab Bites or Lesions Produced by Crabs. J. Cutan. Dis., New York, 1904, 22:507.

Rosenbach. Ueber das Erysipeloid. Verhandl. d. Deutsch. Gesellsch. f. Chir., Berlin, 1887, 16:75.

Dermatitis Vegetans

Corlett, W. T. Dermatitis Vegetans. Brit. M. J., London, 1906, 2:848.

Wende, G. W., and De Groat, H. K. Vegetating Dermatitis Developing During the Course of Infantile Eczema. J. Cutan. Dis., New York, 1902, 20:58.

Granuloma Pyogenicum

Wile, U. J. Granuloma Pyogenicum. J. Cutan. Dis., New York, 1910, 28:663.

CHAPTER XII

DISEASES DUE TO BACILLI

TUBERCULOSIS OF THE SKIN

Tuberculosis of the skin is an important disease on account of its comparative frequency and protean manifestations. No other disease except syphilis causes eruptions which vary so greatly in clinical appearance, duration, location and extent. Our scientific knowledge of the subject dates from Koch's discovery of the tubercle bacillus. Previous to that time many confusing, and at present meaningless names were given to the various eruptions which we now recognize as being tuberculous. Since Koch's discovery our views have undergone radical changes and are still changing.

As stated by Darier there are at present only two grounds on which a positive scientific diagnosis of tuberculosis can be based; namely, the demonstration of tubercle bacilli and the positive inoculation of susceptible animals (such as guinea-pigs). Other factors of considerable, though only presumptive value, include the histologic structure, reaction to tuberculin, clinical appearance and course, family or personal history of tuberculosis and the coexistence of other undoubted tuberculous manifestations.

Variations in the type of tuberculosis depend on the exogenous or endogenous nature of the infection. In the latter case the bacilli reach the skin through either the lymphatics or the blood stream. Allergy is thought by many to play an important part in causing variations in the form of eruption. The infection in nearly all cases is of the human type of tuberculosis, the bovine type being responsible for some of the external infections. There is a single case on record of avian tuberculosis of the skin (Lipschütz).

The manifestations of undoubted tuberculosis which will be discussed in this chapter include lupus vulgaris, scrofuloderma, tuberculosis verrucosa, ulcerative (orificial) tuberculosis and erythema induratum.

Lupus Vulgaris

The disease was first described by Willan and Bateman, the fanciful name lupus being derived from the Latin word meaning a wolf, indicating the gnawing character of the lesions. Lupus vulgaris is the commonest, most polymorphous and chronic type of tuberculosis of the skin. It is by no means as common in the United States as its name would imply.

Symptoms.—The primary lesion of lupus is the nodule, consisting of a pinhead-sized infiltration of cells in the cutis. This often enlarges to the size of a split pea. The nodule is a yellowish-brown, semitranslucent mass on a level with the surface of the skin or slightly raised above it. The color has been likened by Hutchinson to that of apple jelly. It does not disappear under pressure with a glass slide. The nodules are isolated at the outset but tend to become grouped and form patches. Puncture shows them to be extremely soft. The classic type of lupus consists of flat areas in which the individual nodules are easily recognized and which present no crusting, ulceration or other secondary changes. The patches of lupus tend to spread very slowly by contiguity or through the lymphatics, less often through the blood stream. They tend to produce scarring in the central portions which may be soft or keloidal in character.

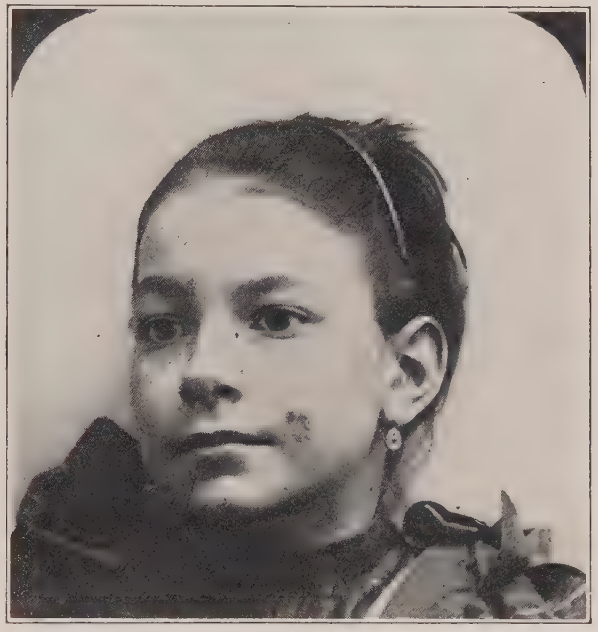

Fig. 74.—Lupus Vulgaris.

Small group of nodules. An incipient case, favorable for excision.

There are many clinical variations from the above described type which make the diagnosis at times difficult even for the most expert. The patches may spread in a serpiginous manner and cover extensive areas, such lesions being seen chiefly on the extremities and buttocks. The nodules may fuse and undergo hypertrophy and closely simulate a nodular syphilid. As a result of traumatism to the overlying epidermis, there may be secondary pyogenic infection with formation of crusts, under which ulceration may take place. Such ulcers are extremely sluggish, slightly painful and bleed easily. Other surface changes include vegetating, papillomatous, warty and at times angiomatous growths which are more common, however, in other types of tuberculosis than in lupus. The process may enlarge, not only peripherally but extend downward and attack muscle, cartilage and tendon and lead to frightful mutilation. A characteristic appearance is produced by destruction of the cartilage of the tip of the nose, giving it a beaklike appearance. In the severe cases of long standing there may be ectropion, almost complete closure of the mouth, destruction of the tip of the nose and mutilation of the ears and extremities. In rare cases associated with lymphatic obstruction especially of the lower extremities there is marked swelling of elephantiasic type.

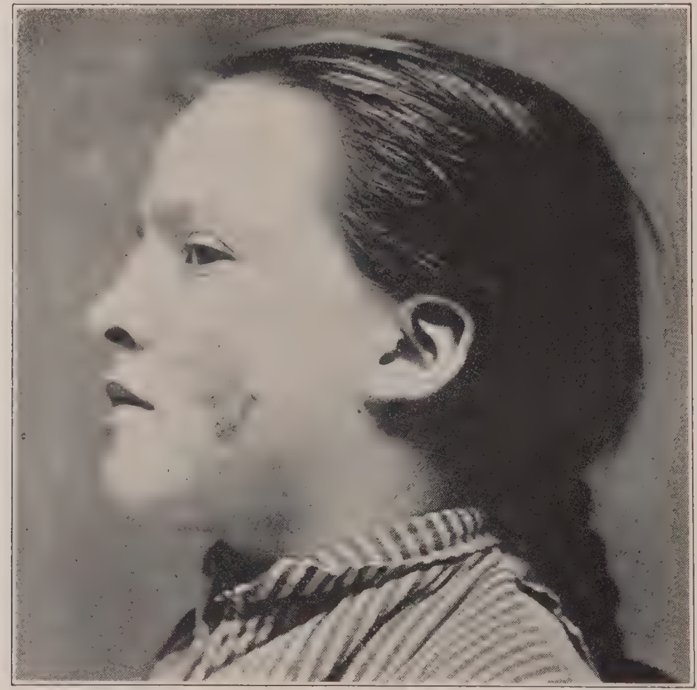

Fig. 75.—Lupus Vulgaris.

A form of the disease which occurs only in children is known as multiple disseminated lupus. It usually follows an attack of measles. The patches develop suddenly and are widely distributed over various parts of the body, especially the elbows and knees. The lesions are discrete, consisting of groups of nodules or patches due to their coalescence, varying in size from a pea to that of different coins. The surface is apt to be scaly or warty and suggestive of psoriasis. The scales often mask the true nature of the disease. The type known as lupus follicularis disseminatus is common in adults but very rare in children. This is chiefly seen on the face and is practically identical with so-called acnitis. The lesions are soft nodules of typical apple jelly color in which tubercle bacilli may be found and which show the characteristic histologic structure of tuberculosis.

The favorite location of lupus vulgaris is the face. It is the first region to be affected in four-fifths of the cases (78 per cent according to London Hospital records). The commonest sites are the nose, cheeks and ears, and somewhat less frequently the neck. The scalp, forehead and upper eyelids are usually spared. The disease is infrequent on the extremities (8 per cent according to London Hospital records). It is exceedingly rare on the palms, soles, axillæ and genitals.

The mucous membranes are involved in half of the cases. This constitutes one of the most serious features of the disease as lupus in this situation is extremely difficult to eradicate. According to Christiansen of Denmark, where the disease is common and severe, the mucous membranes are affected in 80 per cent of the cases. The nose is by far the commonest site, especially the inferior meatus. Next in frequency are the lips, buccal mucosa and palate, the tongue being usually spared. The pharynx, epiglottis and larynx are often affected and the process may spread along the nasal duct to the lacrimal sac and even to the conjunctiva. It may affect the middle ear. Epiphora is a common symptom of early nasal lupus and shows that the duct is obstructed. The infection may be primary in the mucous membranes or be secondary to lupus of the skin. Primary involvement of mucous membranes appears, according to Sequeira, as a "slightly raised patch with granules or uneven surface on which ulcers develop." In the nose the lesions are often crusted.

Subjective symptoms are absent as a rule unless there is much ulceration or secondary infection when pain and tenderness may be present. The general health is good in the majority of cases as long as the disease is confined to the skin or mucous membranes. Lupus vulgaris may be complicated by skin, gland or bone tuberculosis. With the possibility of malignancy developing on lupus in later years we are not now concerned.

The course of the disease is exceedingly protracted, lasting years and even decades. There are periods of quiescence and exacerbation. There is a tendency to partial healing, though new lesions may form within the cicatricial areas. The patients die at times from pulmonary tuberculosis. On the other hand, consumptives do not acquire lupus except in the rarest instances.

Etiology.—Lupus vulgaris begins in childhood and adolescence, usually appearing after the second year and before puberty. It is rare in infants and old people. Girls are affected more often than boys in the proportion of three to one according to MacLeod. The disease is essentially one of the poorer classes, occurring among children who are badly nourished and have lived under unfavorable hygienic conditions. It is not hereditary and seldom more than one person in a family is affected. Frequently a tuberculous family history is obtained.

The actual cause of the disease is the presence of the tubercle bacillus in allergic persons, the infection being autogenous or less often exogenous. Lupus vulgaris, in spite of its terrible appearance in later years, represents a relatively mild virulence of the bacilli. Cases of external infection are on record from piercing of ears, ritual circumcision, tattooing and from nurses, attendants, laundresses, etc. Lupus vulgaris is usually due to the human type of the bacillus.

Pathology.—The essential process is situated in the cutis, consisting of a more or less circumscribed cellular deposit of granulomatous type, with secondary changes in the epidermis. The cellular infiltrate is most marked in the deeper parts and tends to appear in foci (tubercles) about the vessels and appendages. Nodules are formed by fusion of tubercles. The latter are singularly avascular. In a few cases some capillaries may persist but show no endarteritis as in syphilis. The fibrous tissue also disappears. The epidermis shows atrophy or destruction from pressure or hypertrophy with acanthosis and verrucous changes.

Diagnosis.—The diagnosis of an advanced case of lupus vulgaris is not difficult in the majority of cases.It may be so, however, at the outset. Lupus vulgaris may be mistaken for impetigo but the short duration and ready response to treatment of the latter affection prevent confusion. Eczema is ill-defined, definitely itchy, more scaly and oozing may be present. Psoriasis may be confused with the disseminated type of lupus which often follows measles. The scales of psoriasis are silvery and micaceous as opposed to the thicker dirty scales that are seen in lupus. On their removal by superficial curetting, bleeding points may be seen in psoriasis, while removal of scales in lupus would probably show apple jelly nodules. Hypertrophic and serpiginous lupus may closely resemble the nodular form of acquired syphilis. The latter is rarely seen in childhood. Lupus also frequently resembles rosacea and epithelioma but they are diseases which are seen only in adults. Lupus erythematosus is very rare in childhood but does occur. In this disease there is never any ulceration and apple jelly nodules are not present. In some cases the differential diagnosis is only possible by histologic examination.

Treatment.—In the treatment of lupus vulgaris general measures as in other forms of tuberculosis are recommended by some authorities. It is doubtful whether they have much effect on lupus, which is a sharply circumscribed type of the disease. There can be no doubt, however, about the value of general ultraviolet irradiation. Local treatment is always necessary and for this purpose many methods have been used, no one of which is suitable for every patient. The one to be used in a particular case depends on the type, location and extent of the eruption. The treatment of this stubborn and serious disease requires all the ingenuity and perseverance at the physician's command.

When the disease is seen in its early stage and consists of one or possibly more small patches which are suitable for excision by the knife, this method of treatment should without any question be adopted. Unfortunately the majority of parents do not appreciate the seriousness of lupus and hesitate to permit an operation for a condition which appears to them rather trifling. If operation is refused, the method of choice for flat, non-ulcerated and not too extensive lupus of the face is the Finsen ray. This method is painless and gives unquestionably the best cosmetic results. Unfortunately the Finsen apparatus is costly and is found only as a rule in specially equipped institutions in Europe where lupus is common. Furthermore this method of treatment is slow and may require months or years when the disease is extensive. A rather unsatisfactory substitute in my opinion for the Finsen ray is furnished by the Kromayer lamp. This at least is readily available in this country and not prohibitive in cost. The proportion of favorable results is increased when general irradiation (by ultraviolet light) is employed in addition to intensive local treatment.

Radiotherapy with either the Roentgen rays or radium is of limited value in lupus. The Roentgen rays are of value only in the hypertrophic or ulcerated types. After the lesions have become flat or ulcerations have healed, treatment may be continued by other suitable methods. The Roentgen rays do not give satisfactory results in the common flat type of the disease. For lesions of the mucous membranes of the nose and mouth radium has a place of value.

Surgical methods, other than excision, include curettage, scarification and cauterization with the Paquelin or electric cautery. Curetting is a painful procedure for which a general anesthetic is needed and produces a poor cosmetic result. Incidentally it is by no means certain of curing the disease. Multiple scarification is satisfactory for small patches, especially those about the nares, for vegetative lesions and for scars showing the presence of nodules. Cauterization of a large surface with the actual cautery (either Paquelin or electric) is also liable to produce unsightly scars. The treatment of individual nodules by the electric cautery or dental burr is a slower but more satisfactory procedure. The results of freezing by carbon dioxid snow are in general unsatisfactory except for removal of verrucous lesions.

Chemical caustics at the present day are not very widely used with the exception perhaps of pyrogallic acid with which I have had no experience. Chemical caustics, however, are of great value in treating lesions of the mucous membranes, lactic acid in full strength being a useful one.

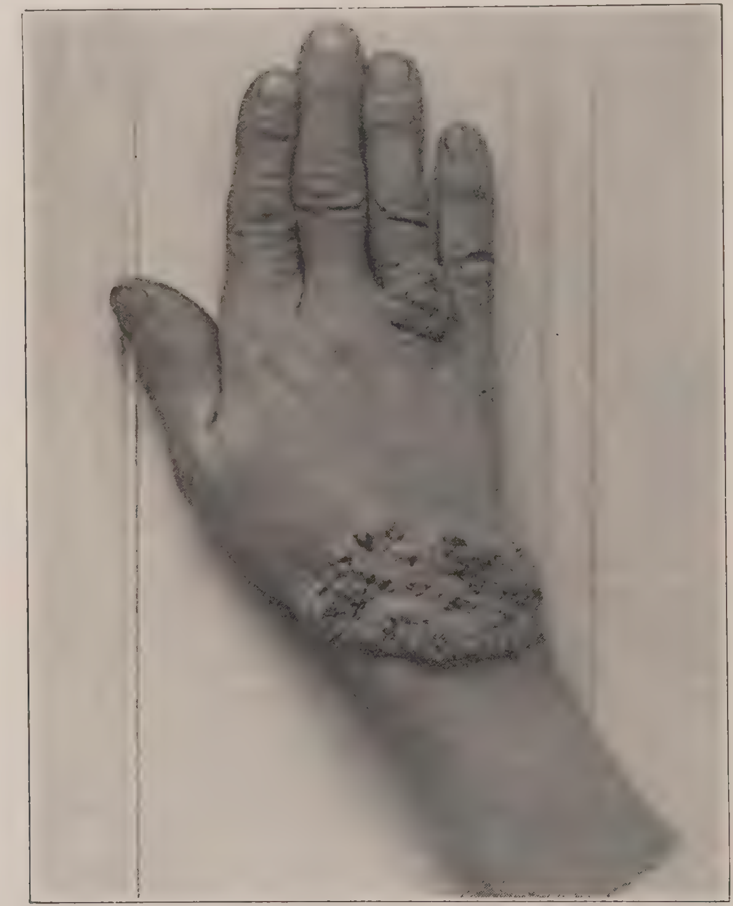

Fig. 76.—Tuberculosis Verrucosa Cutis.
Situation characteristic. Appearance suggests blastomycosis.

Prognosis.—This is good as regards life in the great majority of cases. A few die of generalized tuberculosis. In untreated cases the disease is slowly progressive and may cause severe and permanent mutilation. The prognosis for complete cure must be guarded and is only favorable in the earlier stages. Involvement of the mucous membrane makes the disease much more serious and difficult to eradicate.

Tuberculosis Verrucosa Cutis

The name tuberculosis verrucosa cutis was first used by Riehl and Paltauf who carefully described the condition in 1886. It is a fairly common manifestation of tuberculosis in adults but rare in children.

Symptoms.—In a well-marked example of the disease, three zones may be recognized. The outer border is erythematous and surrounds an area of brownish, papillomatous masses with secondary pyogenic infection, while the central portion shows more or less scarring or verrucous elevation. The lesions may be single or multiple. They are situated most frequently on the back of the hands, fingers and wrists and may also affect the elbows, knees, buttocks and feet. The process is usually indolent and painless. It should not be confused with the verrucous type of lupus vulgaris in which the lupus nodule is the essential feature, while verrucous or other epithelial changes are incidental.

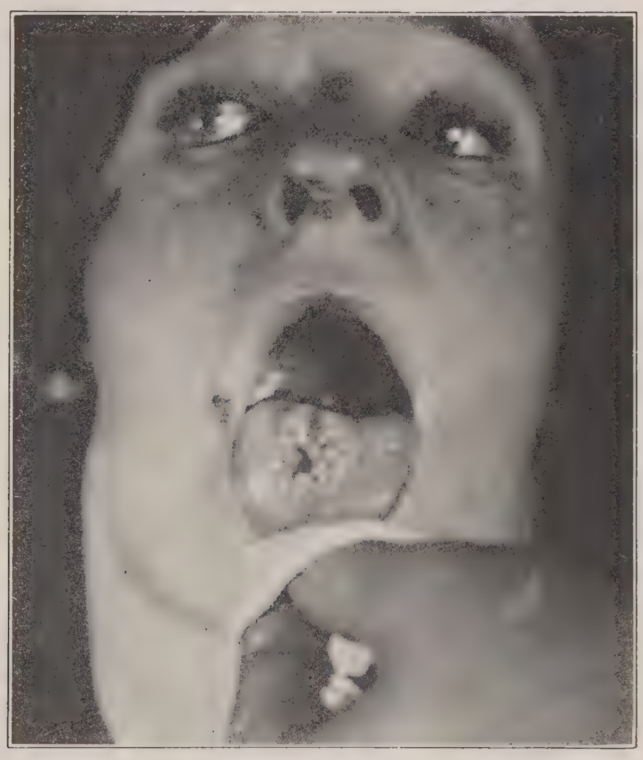

Fig. 77.—Tuberculosis Orificialis.
Ulcer of tongue, secondary to pulmonary tuberculosis.

Etiology and Pathology.—This type of tuberculosis is usually due to an external infection with tubercle bacilli, often of the bovine type. In adults it occurs in those handling tuberculous material, such as butchers or anatomists. It may invade the lymphatics and cause visceral tuberculosis and is therefore a more serious disease than its benign appearance would indicate.

Treatment.—This is similar to that of lupus vulgaris except that in this type the Roentgen rays in repeated "skin unit" doses are often curative.

Tuberculosis Ulcerosa

Tuberculosis ulcerosa (*orificialis*) is the term used to designate ulcers about the mouth or anus and does not refer to ulcerations which occur in lupus or scrofuloderma. It is very rare in children.

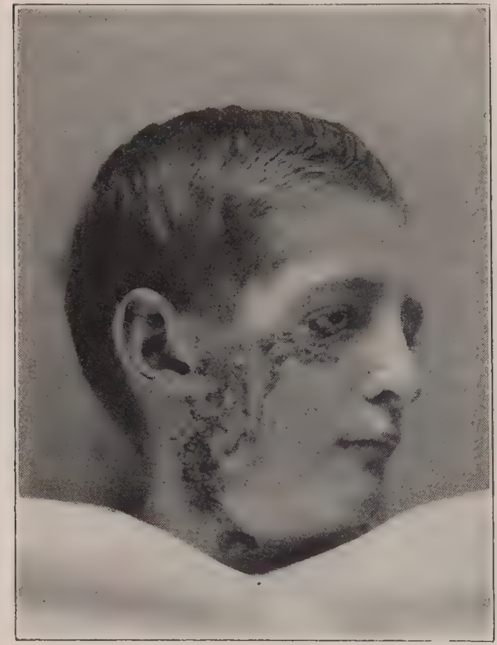

Fig. 78.—Scrofuloderma.

An extensive eruption showing irregular shaped ulcers and scars.

Symptoms.—This type of the disease appears as one or more small ulcers of the lips, tongue, cheeks, pharynx or anus. The lesions are superficial, oval, sharply bordered and often extremely tender. The base shows yellow granules and frequently hemorrhagic points. The lesions may occur in the form of fissures at the commissures of the mouth or about the anus. They show no tendency to heal.

Etiology and Pathology.—The ulcers are invariably secondary to visceral tuberculosis. Those about the mouth are due to pulmonary and those about the anus to intestinal tuberculosis. Histologically, there are masses of characteristic tubercles in which bacilli are numerous, especially at the border of the lesions.

Treatment.—This can be only palliative, the chief attention being paid to the source of infection.

Scrofuloderma

The rather meaningless name, scrofuloderma, is now limited chiefly to tuberculosis of the skin overlying broken-down glands or connected by fistulæ with tuberculous bones or joints. The term is also used for tuberculous gummata of the skin occurring independently of disease of the glands or bones. Scrofuloderma is a fairly common disease and is seen in children much more frequently than in adults.

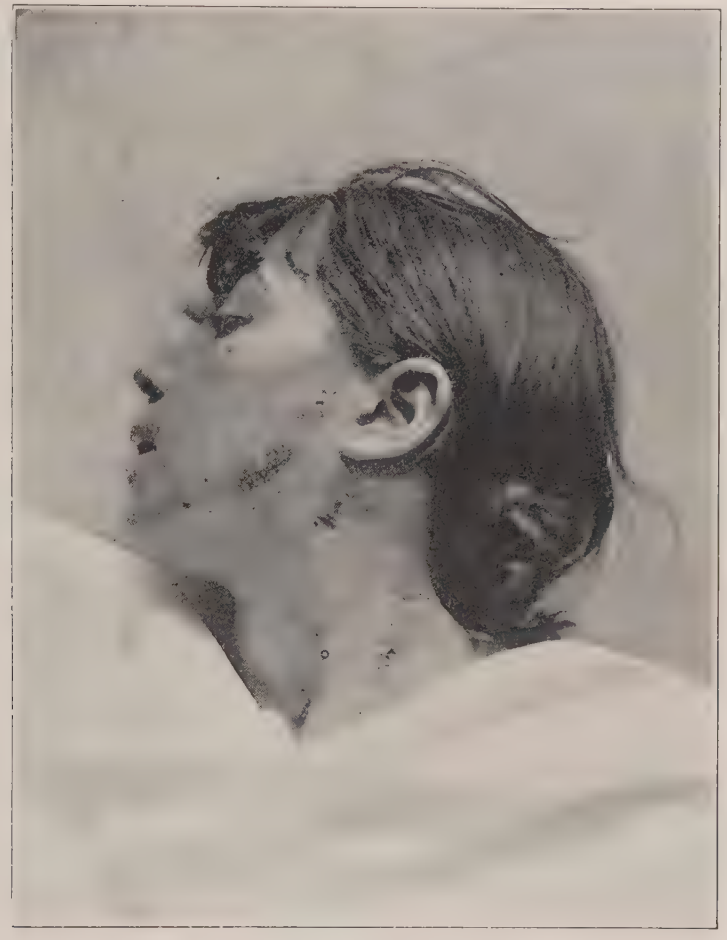

FIG. 79.—SCROFULODERMA.
Eruption still active, though much scarring has taken place.

Symptoms.—Overlying a deep focus, or at times independently, a gummatous mass appears, varying in size from an olive to a hen's egg. Suppuration of the "cold abscess" type follows and the skin becomes bluish, undergoes necrosis and ulcerates. The ulcers are indolent with an undermined edge and seropurulent discharge. The skin at the border may be thinned by stretching over fistulous pockets, and is red and inflamed. The base shows little induration. The lesions are seen chiefly on the neck and face but also in the groins and elsewhere. The course of the disease is protracted, lasting for years. Healing takes place eventually with irregular-shaped, deforming and sunken scars which are attached to the deeper parts. They may also be pigmented.

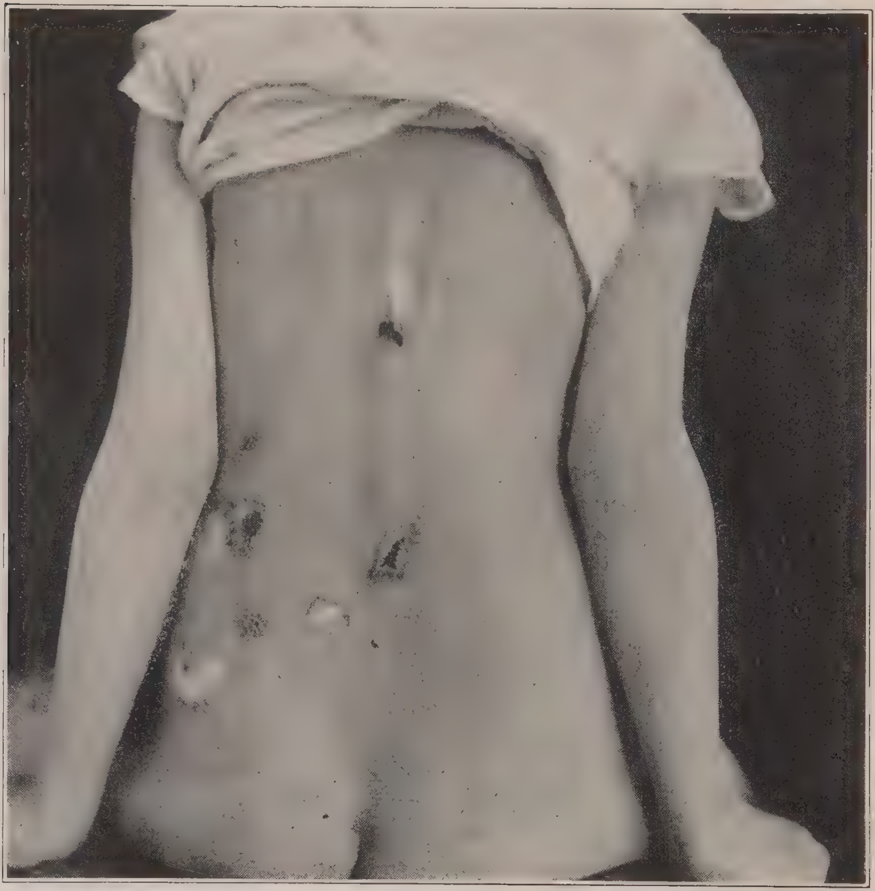

Fig. 80.—Scrofuloderma.

So-called scrofulous gumma, a form of tuberculosis of the skin occurring independently of tuberculosis of bones or lymphatic glands.

Etiology and Pathology.—When the disease is due to tuberculosis of the lymphatic glands, bones or joints, the infection spreads simply by contiguity. In the much rarer forms of tuberculous gumma, occurring independently of these foci, the infection is hematogenous in origin. Bacilli are fairly numerous in this type of tuberculosis.

Treatment.—Treatment is usually attended with success. For this purpose nothing, in my experience, is equal to the Roentgen rays.

Erythema Induratum

(*Bazin's Disease*)

The disease was first described by Bazin, in 1861, as "érythème induré des scrofuleux," thus early suggesting its relationship to tuberculosis. The disease is principally one of young girls and women.

Symptoms.—The eruption begins as pea-sized, reddish nodules in the skin and subcutaneous tissue which in the course of weeks usually enlarge to the size of a dime or more. The skin becomes eventually purplish and the nodules may disappear by absorption, leaving pigmented atrophic scars. It frequently undergoes more or less superficial necrosis, forming indolent ulcers which heal spontaneously or remain as such indefinitely. The lesions are usually multiple and may be numerous (several dozen). Some of them may coalesce. The favorite locations are the calves and less often the lower part of the thighs, the eruption being symmetrical. The upper extremities, in rare instances, may also be involved. There are no appreciable subjective symptoms and no constitutional disturbances. The course is chronic, lasting months or years with frequent recurrence.

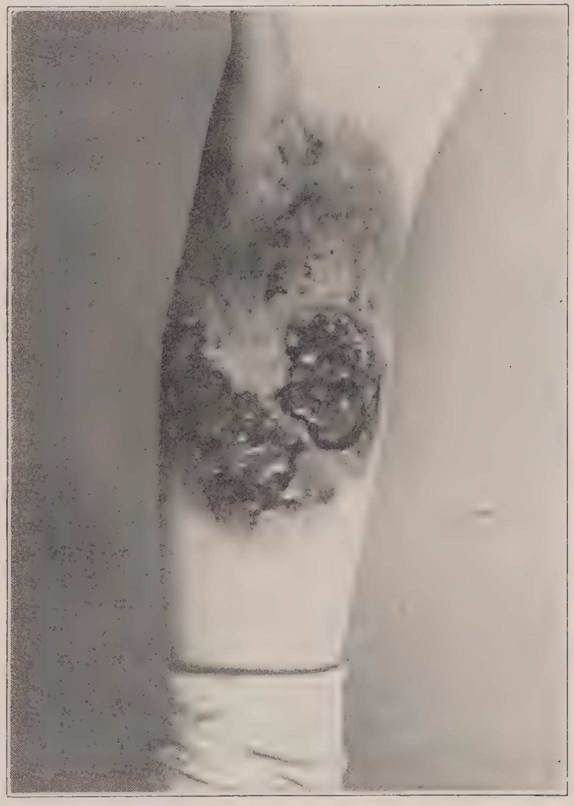

Fig. 81.—Erythema Induratum.
Extensive ulceration closely resembling syphilis.

Etiology and Pathology.—The disease is seen chiefly in the second decade of life, more often among the poorer classes. It is often associated with other evidence of tuberculosis. Cold weather is said to be a predisposing factor and there may be seasonal recurrences. The type seen in young girls shows a characteristic tuberculous structure and in a few cases tubercle bacilli have been found and animal inoculations have been positive. There is another type occurring in stout, middle-aged women which is apparently not related to tuberculosis. With this we are not concerned.

Diagnosis.—Erythema nodosum and syphilis may simulate Bazin's disease. Erythema nodosum appears suddenly, as a rule without constitutional symptoms; the lesions are painful and tender and never ulcerate. The disease runs a shorter course, is definitely self-limited and does not recur; the location is also more often on the anterior aspect of the legs whereas Bazin's disease usually affects the calves. Nodules or gummata of syphilis tend to be unilateral and asymmetrical and to be grouped in circles or portions of circles.

Treatment.—General hygienic and tonic treatment is indicated. Rest and the use of elastic stockings are of value. I have seen both successful and unsuccessful results from the use of the Roentgen rays and from quartz lamps. Good results are said to be obtained at times by mercurial injections and from tuberculin. The ulcers are to be treated on general surgical principles. Of late a few cases have been successfully treated by gold and sodium thiosulphate injections (intravenously) though the results are not equal to those obtained in lupus erythematosus.

TUBERCULIDS

The term tuberculids was suggested by Darier for certain eruptions that are not definitely tuberculous but related in several ways to this disease. Several types of such eruptions are often associated in the same individual or coexist with tuberculosis of glands, bones, serous membranes or viscera. The patients often give a history of tuberculosis or suffer later from the disease. The lesions often show a tuberculous structure microscopically and the local reaction of the tuberculin test is usually positive. Tubercle bacilli, however, are rarely demonstrated and animal inoculations are nearly always negative. Our knowledge of the subject is constantly increasing and gradually diseases which were formerly thought to be merely related to tuberculosis, are now classified as true forms of this disease. As an example, erythema induratum, which was formerly classed as a tuberculid, is now known to be a form of tuberculosis, though it is true that organisms are few and far between and positive animal inoculations are difficult to obtain. The same is true of lichen scrofulosorum and the papulonecrotic tuberculids though positive demonstrations of bacilli and animal inoculations have only been obtained in a few isolated instances. There are still other diseases in which the relationship to tuberculosis is merely suspected and for the present they can only be classed as possible tuberculids. The term tuberculid is not a satisfactory one as it is not analogous to syphilid or leprid, which signify eruptions due to the respective organisms of these diseases. The word tuberculoid would be more appropriate.

The general symptoms of the affections classed as tuberculids are as follows: The lesions are usually disseminated, symmetrical and appear in crops; they have a predilection for certain regions of the body and certain periods of life; they are not accompanied by constitutional symptoms, are of long but variable duration and show a striking tendency to spontaneous cure. In the latter respect they differ from so-called true tuberculosis of the skin. As to the mechanism by which tuberculids are caused, we can merely speculate at present. The theories advanced are that they are due to toxins from some distant tuberculous focus or that the process is a manifestation of allergy, the reaction in the skin being caused by fresh bacilli in an individual previously harboring some form of tuberculosis.

The affections to be considered here include lichen scrofulosorum, papulonecrotic tuberculids, lichen nitidus, granuloma annulare and lupus erythematosus disseminatus.

Lichen Scrofulosorum

Lichen scrofulosorum, first described by Hebra, is a common eruption of tuberculous children in England and the continent. For some unknown reason it is decidedly rare in the United States. Its appearance is often rather inconspicuous and as it causes no subjective symptoms it is doubtless overlooked at times.

Symptoms.—The eruption is apt to be profuse and is symmetrically situated on the trunk and rarely on the extremities. It consists of shiny pinhead papules, which are yellowish or flesh colored. The lesions are usually discrete and situated at the follicular openings. They show a characteristic tendency to be grouped in patches of 2 to 3 inches in diameter. They eventually present tiny scales and may simulate the appearance of lichen planus. No evidence of scratching is seen. Occasionally some of the papules show tiny filiform prolongations resembling lichen spinulosus. At times the papules may coalesce and form scaly, round or oval patches and circles resembling pityriasis rosea or seborrheic eczema. It is said that in rare cases they may be so profuse as to be almost universal, and present diffuse scaling which masks the ordinary appearance of the eruption. Lichen scrofulosorum is invariably associated with tuberculosis of other tissues (glands, bones, viscera). The course of the disease is chronic, the eruption remaining for months or years and finally disappearing.

Etiology.—The lesions show the histologic structure of tuberculosis. In a few instances bacilli have been found and positive inoculations of guinea-pigs obtained. The eruption represents a hematogenous and in itself a harmless manifestation.

Treatment.—None is required since it occasions no inconvenience and disappears spontaneously.

Papulonecrotic Tuberculid

The name papulonecrotic tuberculid, while neither short nor euphonious, is, however, descriptive and is commonly used in this country for the eruption to be described. It has been called by various rather confusing and meaningless names, which are not worth quoting in this volume. The disease is not uncommon and chiefly affects infants. Hempelmann found papulonecrotic tuberculids in thirty infants under two years of age, in a series of one hundred and thirty patients with pulmonary tuberculosis.

Symptoms.—The eruption begins as minute red spots, becoming pinhead to pea-sized, round, firm and sharply defined, bluish-red papules. At the end of a week the lesions usually present vesicopustules at the summit. Central necrosis then takes place, the lesion healing in about a month and leaving a pitted scar. In some cases the amount of necrosis is very slight, the resulting scar looking like the prick of a pin. In other cases the lesions undergo evolution without necrosis or crusting and after healing leave pigmented, slightly atrophic spots. The eruption may be profuse and is fairly symmetrical. The favorite site is the extensor surface of the extremities. There may be some pain but more often only tenderness is present. The lesions appear in crops, the process persisting for months or years but eventually disappearing. According to Finkelstein and co-authors, papulonecrotic tuberculid appears in an unusually large percentage of children suffering from visceral tuberculosis.

Etiology and Pathology.—The disease represents an endogenous infection and may accompany other manifestations of tuberculosis or occur in apparently healthy individuals. The lesions show the histologic picture of tuberculosis and in a few instances bacilli have been found and animal inoculations have been positive for tuberculosis.

Treatment.—This has been most unsatisfactory in my experience. In fact, one of the few favorable results (in an adult) followed the administration of sugar of milk tablets given as a placebo. Darier, however, recommends injections of mercury salts and also arsphenamin, combined with tuberculin in minimal and repeated doses. Stokes has also used arsphenamin with success.

Lichen Nitidus

Lichen nitidus, first described by Pinkus, in 1901, is a rare disease, chiefly affecting adults though it also occurs in children.

Symptoms.—The eruption appears insidiously and is not noticed as a rule unless the lesions are fairly numerous. It is sort of a miniature lichen planus and consists of tiny papules which are flat, smooth, and shiny, as the name implies. They are round or polygonal, yellowish or flesh colored and barely raised above the surface. They may be scattered irregularly over certain areas or appear in groups. They do not, however, coalesce. The favorite sites are the genitals, abdomen, flexor surface of the extremities and nape of the neck. They may also appear on the face or elsewhere. As the eruption causes no subjective symptoms, is mostly on the covered parts and is inconspicuous, it is probable that it is at times overlooked. We are gradually observing more cases at the present time, although the disease is undoubtedly rare. The course is protracted over years but in time the eruption disappears without trace.

Etiology and Pathology.—The disease is seen chiefly in males and in this country rather often in negroes. The etiology is unknown, though the affection should be grouped among the possible tuberculids on account of its histologic structure which suggests tuberculosis. Guinea-pig inoculations by Sutton were negative and as yet tubercle bacilli have not been found.

Diagnosis.—Lichen planus is suggested, but in this disease the papules are larger and tend to coalesce in part and form patches with a violaceous hue and more or less scaling. It also causes considerable itching as a rule. In lichen scrofulosorum the papules are larger and almost invariably grouped in small patches and the disease is always seen in association with other forms of tuberculosis.

Treatment.—This is unsatisfactory as a rule, though in a case of mine included in the report of Trimble and Maloney, there was marked improvement after the use of Roentgen rays.

Granuloma Annulare

Granuloma annulare, first described by Colcott Fox in 1895, is a rare disease of children and young adults.

Symptoms.—The onset of the eruption is gradual as a rule. It appears as firm, elevated and usually flat nodules which are embedded in the skin and elevated above its surface, an eighth of an inch or less. The nodules have a characteristic tendency to form in circles or parts of circles, an inch or two in diameter. By coalescence of two or more lesions, polycyclic figures may be formed. In the central portion of the circles the skin may be normal, reddened or slightly atrophic. The eruption may consist of one or several such lesions but is occasionally profuse. The color is usually whitish or pinkish but may be at times of a dark red or bluish tint. The lesions are smooth, show no tendency to ulcerate and are not accompanied by subjective symptoms. The commonest site is the dorsal surface of the wrist, the feet, neck, elbows, knees and buttocks. The lesions develop slowly within a year or more or may attain their maximum size within a few months. They may then remain stationary for an indefinite time or some of the lesions may undergo involution and new ones form. Eventually the eruption disappears.

Etiology.—The disease is seen most frequently in children, girls being affected somewhat more often than boys. Haldin Davis has observed the disease in an infant of sixteen months. The etiology is unknown. The process is an inflammation which has been attributed to infection and to toxemia. Its relationship to tuberculosis has been claimed by some authorities, though the grounds for such a claim are not at all sufficient.

Diagnosis.—The diagnosis is easily made in a well-developed eruption, occurring as elevated, whitish or pinkish nodular rings which cause no subjective symptoms and run a chronic course. When the nodules do not form circinate lesions the diagnosis can only be made with certainty by histologic examination. One must consider the rare disease known as erythema elevatum diutinum, thought by some to be merely a variant of granuloma annulare. At times there is a close resemblance to the circinate type of lichen planus, as in an extensive case I saw recently.. There was a profuse eruption on the trunk and extremities of circinate type, all the dermatologists who saw it making a clinical diagnosis of lichen planus. The true nature was only evident after histologic examination.

Treatment.—In my experience the Roentgen rays have given excellent results, the lesions disappearing shortly after single doses of unfiltered irradiation (three-fourths of a "skin unit"). Favorable results have been reported from the use of arsenic internally and from the local application of salicylic acid and resorcin.

Prognosis.—Granuloma annulare is a harmless disease which may last more or less indefinitely but disappears completely in time. It responds well to treatment.

Lupus Erythematosus

Lupus erythematosus was first described by Biett as erythema centrifuge, a much better name than the one by which it is now called. The disease is almost entirely one of adults but is occasionally seen in children. It appears in two forms, the so-called "fixed" type and a much rarer one in which the lesions are superficial and less stationary in character.

Symptoms.—The fixed or common type consists of patches of some shade of red which vary in size from a pinhead to that of the palm. The patches are on a level with the skin or slightly elevated at the border which is always sharply demarcated. They are more or less covered with fine grayish adherent scales, the under surface of which has prolongations extending into the enlarged pilosebaceous follicles. The most pronounced scaling is seen at the advancing border. Atrophic scarring appears eventually in the center of the patches and may be stippled or sievelike from the large size of the follicular openings. The scars are smooth and pliable and not deforming as in scrofuloderma or some cases of lupus vulgaris. The lesions never ulcerate nor do they cause any subjective or constitutional symptoms.

Lupus erythematosus is seen most often on the face, ears and scalp and occasionally on the back of the hands. On the face it appears most frequently on the nose and contiguous parts of the cheeks, where it may show characteristic butterfly or batwing configuration. The disease may involve the scalp alone and in this location it causes areas of permanent baldness. In rare instances the mucous membrane of the lips and mouth is affected. The course is extremely protracted with periods of exacerbation and remission. It eventually undergoes more or less involution with the formation of atrophic and rather disfiguring scars.

Though the disease is not supposed to occur in infants, I have recently seen an infant of eleven months at the Nursery and Child's Hospital with an eruption which I thought was lupus erythematosus of a rather superficial type. The disease had been present for three months and consisted of symmetrical, sharply defined reddish patches on the nose and cheeks showing a butterfly configuration. Similar lesions were also present on the upper lip and upper eyelids. The affected areas were dry, covered with fine adherent scales and showed no evidence of itching. The

Wassermann and Von Pirquet tests were negative. The baby was undernourished but in apparent fair health. Gastro-intestinal symptoms soon developed and death followed two months later from bronchopneumonia. Necropsy failed to show any evidence of tuberculosis. Permission was not obtained for histologic examination of the skin lesions.

Etiology and Pathology.—With the exception of the case above mentioned the disease has not been previously observed in infants though it occurs occasionally in children. Kaposi observed it in a child of three years. Lupus erythematosus in childhood was the subject of a thesis by Duplante, the writer analyzing ten cases in children of an average age of nine and a half years. He also quotes the report of Sequeira and Balean who consider that the disease begins at an earlier age than is generally supposed. In their series of seventy-five cases, the disease made its first appearance in eight of them before the age of fifteen. Other cases in young children have been reported by Jamieson, Schamberg and Miller. The disease affects the female sex two to three times as often as the male and occurs in the better classes of society. Predisposing causes include poor health and especially poor circulation. The eruption seems to be caused at times by cold, wind, sunlight or traumatism.

The relationship to tuberculosis has been the source of much difference of opinion. Histologically it does not suggest this disease in the slightest degree. It often coexists with tuberculosis and in a considerable number of cases there is a tuberculous history. Roth collected 250 cases, in 180 of which there was evidence of local or general tuberculosis. On rare occasions bacilli have been found and animal inoculations have proved positive. It is probable that some, but not all of the cases are related in some way to tuberculosis. It is classed by Darier as an erythemato-atrophic tuberculid.

Diagnosis.—Lupus erythematosus in children is most apt to be confused with seborrheic eczema. The sharply defined border of the former disease, the characteristic scaling, chronic course and eventual scarring will usually prevent confusion.

Treatment.—Appropriate measures to improve the general health are indicated. In administering local treatment great caution at the outset should be observed. At this time lotio alba may be found helpful. For the infiltrated and chronic patches an innumerable number of methods have been tried, the majority being rather unsatisfactory. Of these the best, in my opinion, is freezing by carbon dioxid snow. Of late the results of treatment by gold and sodium thiosulphate have produced such astonishingly good results (in adults) that this method, in my opinion, is the one of choice. In adults from 25 to 100 milligrams are usually given at weekly intervals. Correspondingly smaller doses might be suitable for children though I do not know of its having yet been used in young patients.

Prognosis.—In the common fixed type the prognosis is nearly always favorable as regards life. The disease, however, is extremely protracted and invariably causes scarring. The outlook is much brighter since the introduction of the gold treatment. The prognosis is less favorable in the disseminate type, described below.

Lupus Erythematosus Disseminatus

The disseminate type of lupus erythematosus presents an entirely different clinical picture and is a much more serious disease than the ordinary fixed type. It begins on the face as pinkish patches which soon coalesce and cover large areas. It may also involve the chest and upper extremities or other parts of the body. The border is not sharply defined, the scaling varies and infiltration is slight. There may be some sensation of burning and itching. The eruption may disappear spontaneously with little or no scarring but recurrence is frequent. In the acute exanthematic cases there are profound constitutional symptoms, including fever, bone pains and gastro-intestinal symptoms. It may prove rapidly fatal from pneumonia, pulmonary tuberculosis or nephritis, or it may follow a subacute course with mild constitutional symptoms, the patient becoming weak and lethargic.

Like the common type of lupus erythematosus this disease is rare in children. I have recently, however, seen such an eruption in a girl of eight and a half years at the Nursery and Child's Hospital. There were dull reddish, slightly scaly, ill-defined, non-itchy, symmetrical patches on the face, the patient suffering from a continued high temperature and considerable prostration.

In addition to general treatment, the gold and sodium thiosulphate in adult cases has produced some excellent results.

LEPROSY

Leprosy is a disease of world-wide distribution. As it affects children frequently and as it is endemic in certain parts of the United States it merits a description. Leprosy is probably as old as civilization and existed in Egypt, India and Africa before the Christian era. According to Rogers and Muir it seems possible that leprosy originated in Central Africa as it was certainly introduced from Africa into Europe and the

United States within historical times. In Europe the disease was very prevalent in the Middle Ages, at one time there being two thousand leprosariums in France alone. It is only by segregation that leprosy has been practically banished from Europe. In general the disease is most prevalent in warm and moist climates. It is widespread in the West Indies and parts of South America and, what is of importance to us, it is endemic in the Gulf states, especially Louisiana, Florida and Texas. Though formerly endemic among Scandinavian immigrants in Minnesota it has now almost entirely disappeared from this region. In all of the large seaports the disease is frequently encountered, there being between thirty and fifty lepers at all times in New York City. There are usually about ten such cases under treatment at the University and Bellevue Clinic, while four years ago I had seventeen cases at one time under my care at the Riverside Hospital.

Biblical descriptions of the word translated as leprosy are largely responsible for the horror in which the disease is held, though it is at best a most distressing and usually fatal one. It may be said that there is no scriptural reference to any disease in the Bible which is unquestionably the leprosy of the present day.

Symptoms.—From the time of infection to the first manifestation of the disease there is a so-called incubation period. It is probably a period of latency rather than one of true germination of the causative organisms. Its length is difficult to ascertain as there is no definite primary lesion as in syphilis. The period may vary from a few months to ten, twenty or possibly thirty years, an average being perhaps two or three years. Prodromal symptoms may be present which are indefinite and consist of mild or severe fever, headache, malaise and rheumatoid pains. The disease may be ushered in by rhinitis with frequent epistaxis or there may be sensory, vasomotor or trophic disturbances. Three types of the disease are recognized: (1) Nodular or skin leprosy. (2) Maculo-anesthetic or nerve leprosy. (3) Mixed type.

Nodular Type

The first cutaneous lesions are ill-defined reddish or yellowish-brown macules varying in size from a pea to that of the palm. They may clear in the center and form circles. The central portion may be partly or completely depigmented. The macules may be hyperesthetic at first and later anesthetic. The favorite sites are the face and extensor surfaces of the extremities, the trunk being less often involved. Nodules form eventually either on the macules or on normal skin. They vary in size from a pinhead to a cherry or may appear as diffuse infiltrations. They may be hyperesthetic, anesthetic or show no sensory change. Nodules appear on the face and especially the lobe of the ear. When closely aggregated on the supra-orbital region they cause the so-called leonine or frowning expression. They may ulcerate and cicatrize or they may be absorbed. The back of the hand is often pigmented and wrinkled. There may be scaling of the legs, suggesting eczema or ichthyosis or marked swelling of the hands and feet of an elephantiasic appearance. The mucous membrane of the mouth and nose, cartilaginous part of the septum and inferior turbinates, palate, pharynx and larynx may be attacked. The eyes are often involved in the later stages showing conjunctivitis, keratitis, iritis or destruction of the eye. One of the characteristic symptoms is thinning or

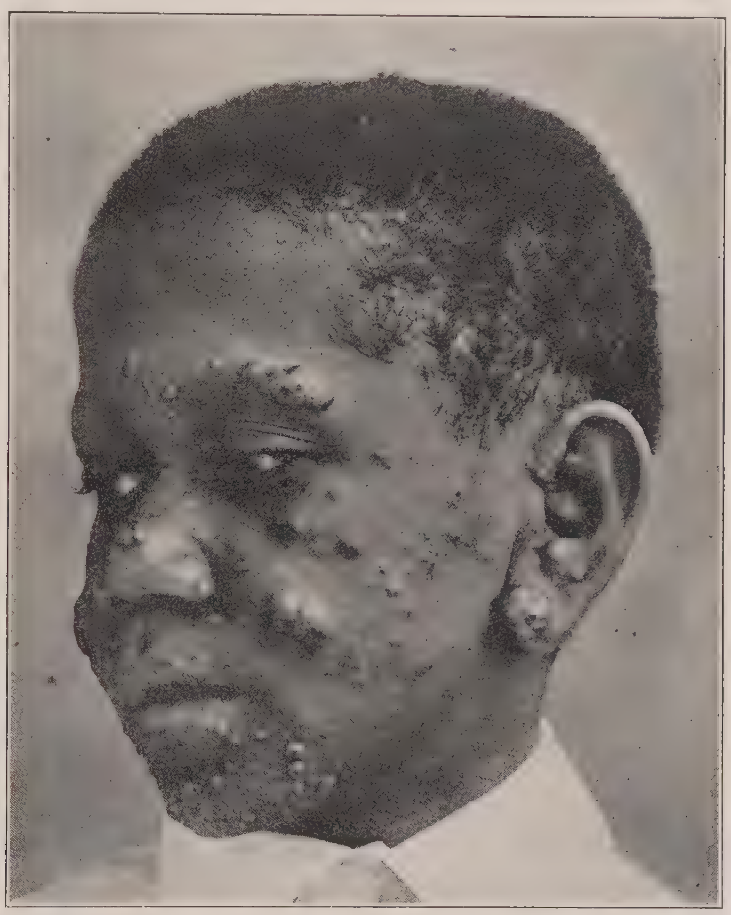

FIG. 82.—LEPROSY OF NODULAR TYPE AND MODERATE SEVERITY. Disease contracted in West Indies.

loss of the eyebrows. The scalp is almost never affected. There is usually some enlargement of certain nerves and inguinal adenopathy.

The course of this type of leprosy is progressive with exacerbations and remissions. The patients live eight to twelve years as a rule and die of marasmus, diarrhea, stenosis of the larynx or intercurrent disease (tuberculosis). Occasionally there is a change to the anesthetic type when the prognosis is better.

Maculo-Anesthetic Type

The symptoms in general are those of peripheral neuritis. The disease begins insidiously with macules or bullæ or sensory disturbances. The macules do not contain bacilli and are apt to enlarge and form circinate patches, the center of which may be depigmented. The superficial nerves, especially the ulnar, great auricular and peroneal, become enlarged and tender at first and later anesthetic. Sensory changes include hyperesthesia, paresthesia, neuralgic pains and abnormal sweating. Eventually there is extensive anesthesia of the extremities. Muscular atrophy and partial paralysis occur, atrophy of the first dorsal interossei being characteristic. Retraction of tendons causes the so-called "leper claw" consisting of extension of the first and flexion of the second phalanges. There may be paralysis of the orbicularis palpebrarum and orbicularis oris muscles, giving the face a masklike stupid and doleful appearance. The process may stop at muscular atrophy and tendinous retraction or go on to severe mutilation of the hands and feet. Ulceration of the septum causes sinking of the bridge of the nose. The course is more chronic than in the nodular type, the patients living an average of fifteen years. Death takes place from marasmus, diarrhea or intercurrent disease (rarely from tuberculosis).

Etiology.—While the disease affects all ages and races and both sexes, children are the most susceptible, especially after five years of age. Leprosy is not hereditary nor is it ever present at birth. Children taken from leprous parents soon after birth and kept away from all other lepers never acquire the disease. Leprosy is a communicable disease, most often acquired in hot, damp climates by young persons, after prolonged and close association with lepers. The method of communication from person to person is not known though it is thought to be through the skin or mucous membrane, especially of the nose.

The disease is agreed by all to be due to the bacillus discovered by Hansen, though all of Koch's postulates have not been satisfactorily fulfilled. It is an acid-fast organism, closely resembling the tubercle bacillus. Cultures have been made at times with difficulty and a few inoculations in monkeys have been successful. The bacilli are found in the nodules of the skin, mucous membranes, eyes, glands, viscera and peripheral nerves. The histologic changes are often rather characteristic but not absolutely pathognomonic.

Diagnosis.—In an advanced case of any type of leprosy there is no difficulty in diagnosis. This may be somewhat difficult, however, at the outset. The presence of reddish-yellow macules which are anesthetic is a feature not seen in any other disease affecting the skin. When no anesthesia can be demonstrated there will often be some enlargement of the ulnar nerve though the thickness of this nerve varies considerably in normal persons. The diagnosis is confirmed by finding the lepra bacilli either in a smear from the nasal septum or in a smear or stained section from a nodule. Tuberculosis, syphilis, ringworm, lupus erythematosus and vitiligo must be considered at times. The anesthetic cases may closely simulate syringomyelia. The Wassermann test in well-marked cases of the nodular type is often positive in the absence of syphilis.

Treatment.—General measures, including a change of climate, nourishing food, proper hygiene and cheerful surroundings are of the greatest value in the control of this disease. Strychnin and daily warm baths are generally considered useful from their tonic action. Chaulmoogra oil is specific to a certain extent though its value does not compare with that of quinin in malaria or arsphenamin in syphilis. It is best used as the ethyl esters and given intramuscularly. The treatment must be continued for a long period and is rarely capable of permanently arresting the process except in the early stages. My personal views on the curability of the disease are not very optimistic. By persistence and by keeping the patient in a cheerful frame of mind the best results can be accomplished. Segregation is the only means of completely eradicating the disease in an endemic region. Strict isolation is apparently unnecessary in the northern part of the United States, where the disease, for some unknown reason does not appear to be carried from one person to another. All of the lepers we see in New York have come here from foreign countries or the Gulf states.

Prognosis.—This is bad in the great majority of cases, especially of the nodular type, death usually resulting. Spontaneous cure occasionally occurs in the anesthetic type. Treatment with chaulmoogra oil at the outset may control or at times cure the disease.

DIPHTHERIA OF THE SKIN

Diphtheria of the skin is an uncommon but important disease on account of its contagiousness and serious nature. It is seen mostly in children. It was first described as early as 1759 by Chomel though Neisser was the first to demonstrate the bacilli in cutaneous lesions.

Symptoms.—Diphtheria may involve the skin primarily though this is extremely rare. In such cases it may later attack the mucous membranes. In nearly all cases the cutaneous lesions are secondary to diphtheria of the mucous membrane of the nose and throat. Primary diphtheria may be accompanied by fever, glandular enlargement and postdiphtheritic paralysis and may even be fatal.

Infection of the skin with diphtheria bacilli always follows some break in continuity, such as a wound, fissure or excoriation, or common skin affections, such as herpes, impetigo, eczema or intertrigo. It is seen most frequently about the nose, mouth, ears or neck but may also occur in the anogenital region. In newborn infants it has been observed at the navel. The commonest type is that in which a false membrane is formed. Such lesions are round or oval, with marked edema and inflammation of the surrounding tissue, a false membrane and more or less ulceration, with profuse and often fetid purulent discharge. At times ulceration is marked and results in scarring. Some cases become gangrenous and may resemble noma. The glands in anatomical relationship may be enlarged and tender and lymphangitis or erysipelas may supervene. Fever may be present or absent.

Variations in the type of cutaneous diphtheria are numerous as shown in the excellent discussion of this subject by Knowles and Frescoln. From a review of the literature they find that in addition to the false membrane type, many others are recorded, including ulcerative, gangrenous, eczematous, impetiginous and bullous forms, eruptions simulating varicella, dermatitis herpetiformis, abscesses and tumors. They quote the report of Deutschlander who collected records from the literature of forty-eight cases of diphtheritic tumors.

The course of the disease depends largely on its early recognition and proper treatment. Owing to secondary infection it may be protracted and at times in spite of the vigorous use of antitoxin, death may ensue, usually from sepsis.

Etiology.—Children are affected most frequently, though the disease may occur at any age. It is due to the presence of Klebs-Löffler bacilli. In the majority of cases, diphtheria of the skin is caused by auto-infection from lesions of the mucous membranes or an aural discharge. It may result from contact with others who are suffering from diphtheria or are carriers of bacilli or may be due to contact with infected clothing, eating utensils, toys or other articles. It has been shown that the bacilli may live outside of the body for weeks or even months. The Klebs-Löffler bacillus may be recognized by microscopic preparation, culture or by animal inoculation and is to be distinguished from the pseudodiphtheria bacillus of Hofmann.

Diagnosis.—The presence of known or suspected diphtheria of the nose, throat or larynx or history of contact with others suffering from this disease suggests the origin of the cutaneous lesions. Suspicion should be aroused in intractable eruptions of impetiginous, eczematous or ulcerative character, about the nose, mouth, ears or female genitals. The association with a purulent rhinitis, sore throat or discharging ear in such cases should suggest an examination for bacilli. The absence of a false membrane on a cutaneous lesion by no means excludes the diagnosis of diphtheria. An ulcerating syphilid might be suggested but is not attended by severe local inflammation or by constitutional symptoms. Multiple vaccinia from auto-inoculation is differentiated by the history of the case.

Treatment.—The general treatment is similar to that of diphtheria of the mucous membranes and consists in the speedy administration of antitoxin. Locally the lesions may be cleansed with peroxid of hydrogen and treated by antiseptic lotions or salves. Isolation of the patient is important as cutaneous diphtheria is a very contagious disease.

Prognosis.—This is nearly always good. The disease is at times protracted and death may occur occasionally from diphtheria of the skin alone or more often from complicating sepsis.

BIBLIOGRAPHY

LUPUS VULGARIS

LIPSHUTZ, B. Über ein eigenartiges durch den Typus gallinaceus hervorgerufenes Krankheitsbild der Tuberkulose, etc. Arch. f. Dermat. u. Syph., Wien & Leipzig, 1914, 120: 387.

SEQUEIRA, J. H. Diseases of the Skin, Philadelphia, P. Blakiston's Sons & Co., 2d Ed., 1915, p. 243.

PAPULONECROTIC TUBERCULID

HEMPELMANN, T. C. Frequency of Tuberculides in Infancy and Childhood and Their Relation to Prognosis. Arch. Pediat., 1917, 34: 362.

STOKES, J. H. Clinical Studies in Cutaneous Aspects of Tuberculosis. Am. J. M. Sc., Philadelphia, 1919, 157: 167.

Lichen Nitidus

Trimble, W. B., and Maloney, E. R. Lichen Nitidus. Arch. Dermat. & Syph., Chicago, 1923, 7:452.

Granuloma Annulare

Davis, H. Case report. Brit. J. Dermat., London, 1910, 22:90.
Little, G. Granuloma Annulare. Brit. J. Dermat., London, 1908, 20:213.
Stillians, A. W. An Unusual Case of Granuloma Annulare. J. Cutan. Dis., New York, 1919, 37:580.

Lupus Erythematosus

Duplante, E. Du Lupus Erythemateux chez l'Enfant. Thèse de Montpelier, 1905.
Jamieson, W. A. Lupus Erythematosus in a Girl Aged 8 Years. Brit. J. Dermat., London, 1893, 5:115.
Kaposi, M. Hautkrankheiten. Wien, 1880, p. 613.
Miller, J. W. Lupus Erythematosus in a Child. J. Cutan. Dis., New York, 1913, 31:646.
Roth, F. Ueber die Beziehungen des Lupus Erythematosus zur Tuberculosis. Arch. f. Dermat. u. Syph., Wien & Leipzig, 1900, 51:3.
Schambert, J. F. A Case of Lupus Erythematosus in Early Childhood. J. Cutan. Dis., New York, 1906, 24:381.

Leprosy

Rogers, L., and Muir, E. Leprosy, New York, Wm. Wood & Co., 1925.

Diphtheria of the Skin

Knowles, F. C., and Frescoln, L. D. Diphtheria of the Skin in Unusual Types. J. Am. M. Ass., Chicago, 1914, 63:395.

CHAPTER XIII

DISEASES OF THE HAIR AND NAILS

THE HAIR

Hypertrichosis

Hypertrichosis is defined by Danforth as a "growth of hair on any part of the body which is in excess of the amount usually present in persons of the same age, race and sex as the subject." Hypertrichosis may be either congenital or acquired. The congenital form, with which we are alone concerned, may or may not be associated with pigmentation. In the latter case, it constitutes the familiar hairy and pigmented nevus which has been previously described.

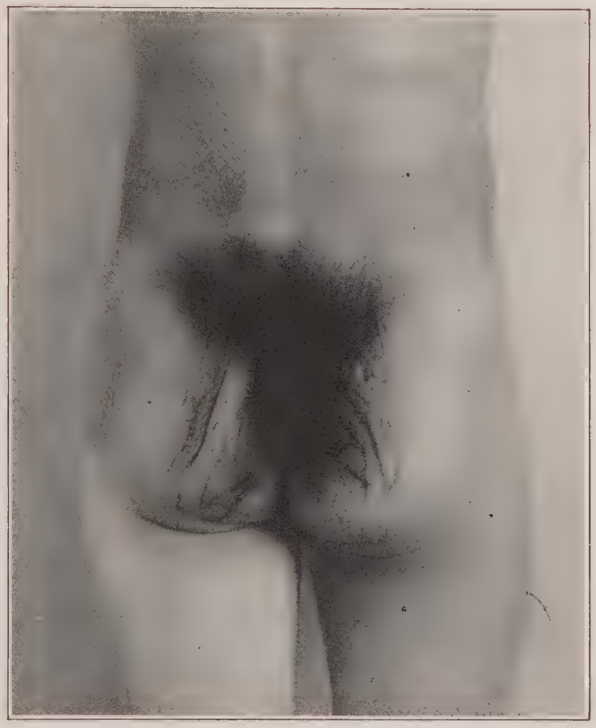

Fig. 83.—Hypertrichosis of Congenital Type, Often Associated with Concealed Spina Bifida.

Hypertrichosis, occurring without pigmentation, may be localized or universal, the former being rare and the latter extremely so. Localized hairy growths are apt to be situated in the lumbar or sacral region in association with apparent or concealed spina bifida (See Fig. 83). Less often the growth is seen on the thighs or elsewhere. Other anomalies of development, such as dental defects or club-foot, may be present.

In universal hypertrichosis the surface of the body may be covered at birth with downy hairs or these may appear somewhat later. They increase gradually in size and vigor and become pigmented. Individuals of this type are known as *homines pilosi* or hairy people and resemble hairy animals, a well-known example being the Russian "dog-faced" man of circus fame. In such cases, the growth involves even the nose and forehead. The quality of the hair in these individuals is soft, woolly and curly.

The cause of congenital hypertrichosis is unknown. It may represent an atavism. As a rule, there is a familial or hereditary tendency.

Alopecia Congenita

Symptoms.—Congenital alopecia is a rare abnormality which may be either partial or complete, diffuse or regional. In very rare instances there is no hair whatever at birth. This condition may remain without change or be followed later by normal growth. In other cases, the hair may be downy at the outset and either remain so through life or more often acquire gradually its normal length, color and texture. Congenital alopecia may appear alone or be associated with other anomalies of development, especially of the teeth and less often of the nails. Other coincidental changes include nevi, monilethrix, keratosis pilaris and webbed or supernumerary digits. It may appear as one of the many manifestations of the rare condition described as congenital ectodermal defect. Such cases show, in addition to incomplete or defective development of the teeth and nails, congenital absence of sweat and sebaceous glands and other characteristic changes.

Etiology.—Congenital alopecia is due to a partial defect in the development of the hair-follicles and rarely to their complete absence. It may occasionally be due to traumatism from obstetric forceps, the bald patches in that case appearing on the parietal region. The affection is seen almost twice as often in males as in females and is frequently familial and hereditary as in Kingsbury's cases. Balzer and Barthelemy reported four cases in three generations and a remarkable instance of thirty-six persons in six generations is recorded by Nicolle and Halipré. Congenital alopecia is regarded by Hyde as an expression of atavism, especially on account of certain changes noted in the retina which occur in some of the lower animals. Oliver and Gilbert think that an accompanying keratosis pilaris is an etiologic factor in some cases.

Treatment.—It is doubtful whether treatment is of any value. On general principles stimulating remedies may be tried, if for no better purpose than a placebo. If there is no change at the end of a year or two the prognosis is usually hopeless.

Atrophia Pilorum Propria

Atrophia pilorum propria is a general term applied to atrophy of the hair itself as opposed to alopecia in which the hair for various reasons is absent from the follicles. Atrophic changes may be due to general diseases, such as tuberculosis, syphilis, diabetes and cachectic conditions, or to local diseases, such as ringworm or seborrheic eczema. In other cases no cause is apparent. Three atrophic conditions will be described including fragilitas crinium, trichorrhexis nodosa and monilethrix.

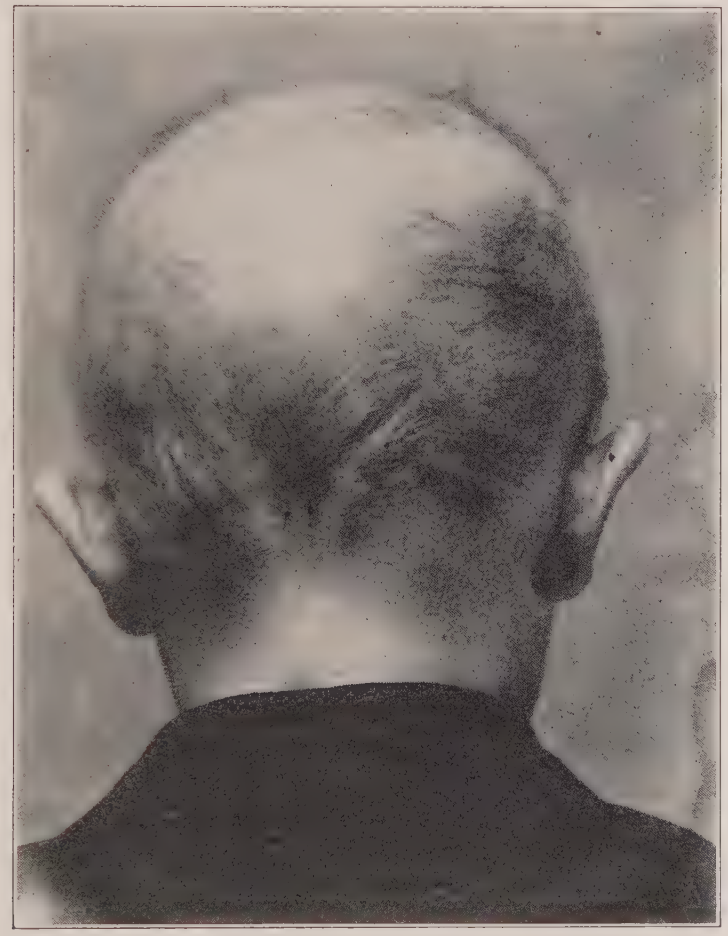

Fig. 84.—Alopecia Congenita.
Prognosis unfavorable for further growth of hair.

FRAGILITAS CRINIUM

The term fragilitas crinium is applied to hairs which are brittle and break after slight traumatism or which show a tendency to splitting, especially at the ends. This is not uncommon in long hairs. The splitting at times may extend for a considerable distance along the shaft and may even be present in the follicle, in which case the latter is likely to show some slight inflammatory irritation. A few or at times the majority of the hairs may be split. The process is usually diffuse, though it is occasionally seen in patches. There may be some general nutritional disturbance or no apparent cause. Treatment includes measures to improve the general health, local hygiene of the scalp and oily applications. Singeing is of no value.

TRICHORRHEXIS NODOSA

Symptoms.—Trichorrhexis nodosa is a form of atrophy seen chiefly in long hair of women and the beard or mustache of men. It may occur, however, in children with long hair. It consists of one or several minute nodes, usually in the distal third of the hair. There is splitting of the fibers of the cortex, like a greenstick fracture, appearing to the naked eye as a grayish or whitish node, and under the low power of the microscope like two brushes placed end to end. Complete fracture occurs eventually from ordinary traumatism, the free end appearing frayed. When such hairs are numerous they look as if they had been singed. As there is no disturbance in the papillæ, the hairs do not fall but simply break off and become shorter. There are no subjective symptoms and the process merely causes disfigurement. It is chronic and resistant to treatment.

Etiology.—Various causes have been suggested, such as abnormal dryness, mechanical injury and microbic invasion, though nothing has been definitely proven.

Treatment.—This is usually unsatisfactory. Those who favor a parasitic cause use various antiparasitic remedies. Others who think that the process is due to unnatural dryness recommend cutting the hair at the nodes and the constant application of an oily substance.

MONILETHRIX

Symptoms.—Monilethrix is a rare affection, appearing usually at birth or soon after, though occasionally beginning in adolescence or adult life. It consists of alternating fusiform nodes and constrictions, giving the hair a beaded appearance. The nodes represent the normal thickness of the hair which contains pigment and medulla. By transmitted light they appear dark, the opposite by reflected light. The affected hairs are lusterless, curved and twisted and break at the constricted or internodal portions. The beaded formation is present in the entire shaft and in the follicular portion as well. The hairs are short, varying from a quarter of an inch to an inch or more in length, though they may be broken off at the level of the skin and appear as black dots. The disease is usually localized, especially in the occipital region, though the entire scalp may be affected. At times the eyebrows may also be involved. The disease is permanent and leads to complete baldness of the affected areas, though for a time there may be enough hairs to partly hide the defect. There are no subjective symptoms and the affection is only of importance on account of its disfigurement. It is almost invariably associated with keratosis pilaris.

Etiology.—Monilethrix is frequently familial and hereditary, Anderson recording fourteen cases and Sabouraud seventeen cases in five generations. In other cases, such as those of MacKee and Rosen, there was no history of hereditary involvement. Familial cases are likely to be of the same sex. Various causes have been suggested. It has been considered to be due to periodic aplasia of the hair-follicle, to nervous shock and to an ectodermal defect. The associated keratosis pilaris has been thought to play some part in the causation. No microörganisms have been found by microscopic examination or culture.

Treatment.—This is usually of little or no avail, except for the associated keratosis pilaris which may be lessened by keratolytic remedies, such as salicylic acid. Slight improvement has occasionally been observed to occur spontaneously.

Alopecia Symptomatica

Symptomatic alopecia is a convenient term to designate acquired loss of hair, which may be temporary or permanent and due to a variety of general or local diseases.

Traumatism is responsible for a small proportion of cases. A characteristic form is seen in infants on the occipital and less often the parietal region from constant rubbing of the head against the pillow. Temporary or permanent areas of baldness may follow contusions, wounds, or burns from heat or chemical caustics. A peculiar nervous habit of pulling out hairs with the fingers (trichotillomania) is sometimes seen in children as well as adults. An unusual case in a boy of seven is recorded by Sutton and Timme, in which the disease existed for five years. In other cases, the patients break off the hairs instead of pulling them out (trichokyptomania). In still others they produce localized areas of partial baldness by uncontrollable rubbing or scratching, no local disease being present (dermatothlasis). Pulling out the hair for purposes of malingering is rarely encountered in children.

A general and symmetrical fall of hair, known as defluvium capillitium, may follow acute infectious diseases, such as typhoid fever, pneumonia or the exanthemata. It may also occur after severe operations or accidents. In such cases the alopecia usually appears at the end of two or three months and is invariably followed by a regrowth of hair. This is at times even more luxuriant than before or of a different quality (straight hair becoming curly or vice versa). Due to toxic action on the papillæ, there is a temporary inhibition of growth, the hairs eventually being extruded from the follicles by new ones or removed by brushing or other friction. A general thinning and impairment of the nutrition of the hair may occur in association with chronic diseases, such as tuberculosis, diabetes or myxedema. The return of hair in such cases is not as certain as in the defluvium following acute diabetes.

Alopecia may occur in congenital syphilis, but is not characteristic. I agree with the statement of Stillians that in this disease the alopecia is an "indefinite one and of no diagnostic value." The alopecia of acquired syphilis is characteristic in only a small proportion of cases. This consists of patchy and partial thinning of the "moth-eaten" type. It would be rare indeed in children, who do not often acquire the disease.

Alopecia in children is most often due to the presence of local disease of the scalp. This is especially true of fungous infections, such as ringworm and favus. In the former case, the fall of hair is temporary except in the rather infrequent pustular types. In favus, the baldness is permanent and often extensive and disfiguring. These types have previously been considered (see diseases due to fungi). Alopecia following impetigo or furunculosis of the scalp is common in children, and is not infrequently mistaken for alopecia areata. It is due to the local toxic action of pyogenic cocci and is usually temporary. A slight amount of alopecia may be caused by eczema or psoriasis. It is surprising, however, that in most cases of psoriasis of the scalp, in spite of frequent profuse scaling, there is little or no disturbance of the hair growth. Simple pityriasis and seborrheic eczema of the scalp are frequently associated with a fall of hair. While much less common in children than in adults, these conditions are nevertheless seen, especially in older children. Dandruff in young children is not very common, and when this is apparently present a careful examination for ringworm should be made. Exfoliative dermatitis, either of unknown origin or occurring as a symptom of intoxication from arsphenamin (or allied drugs), may cause extensive though usually temporary baldness.

The production of alopecia is a characteristic action of the Roentgen rays (or radium). This is utilized for the treatment of ringworm and favus of the scalp as previously described. When a proper amount is given, the fall of hair is temporary; while if excessive, the alopecia is permanent. As a result of improper treatment in making radiograms of the frontal sinuses, circumscribed bald patches in the occipital region occasionally result. They are partial or complete, temporary or permanent, according to the quantity of rays which were given. The point to be remembered is that in using the Roentgen rays on the scalp, erythema should never be produced, for if this occurs permanent damage is likely to result. Thallium acetate causes alopecia and is now used for therapeutic purposes (see treatment of ringworm).

Scar-producing diseases which occur on hairy regions are naturally followed by permanent loss of hair. These include lupus vulgaris, syphilis, smallpox, scleroderma and lupus erythematosus. Folliculitis decalvans, which leaves permanent and often extensive baldness, is seen chiefly in adults.

Alopecia Areata

Alopecia areata or baldness in spots is a common disease of childhood which was known to the ancients and described by Celsus.

Symptoms.—The onset is sudden and as a rule there are no premonitory symptoms. In rare instances it is preceded by headache or malaise and by slight itching or paresthesia in the regions about to be affected. The disease is usually discovered accidentally by the child's mother, the nurse or the barber, and consists of one or more sharply defined, round, oval or irregularly shaped bald patches. There is a characteristic absence of signs of inflammation. At the outset the patches may show a pinkish blush, but soon assume an ivory white appearance. The affected skin is also smooth and shiny and shows no atrophy or other change in consistence. Unlike ringworm, the patches may be completely bald. Subjective symptoms are entirely absent.

There may be a single patch or many of them, which enlarge to a certain size and then remain stationary for weeks, months or a year or two. There is little or no tendency to symmetry. The patches may coalesce until the greater part of the scalp is denuded though in nearly all of the extensive cases a few tufts of hair remain. In a small proportion of cases the entire scalp becomes bald. At times the eyebrows and eyelashes and lanugo hairs of the body are affected (alopecia totalis).

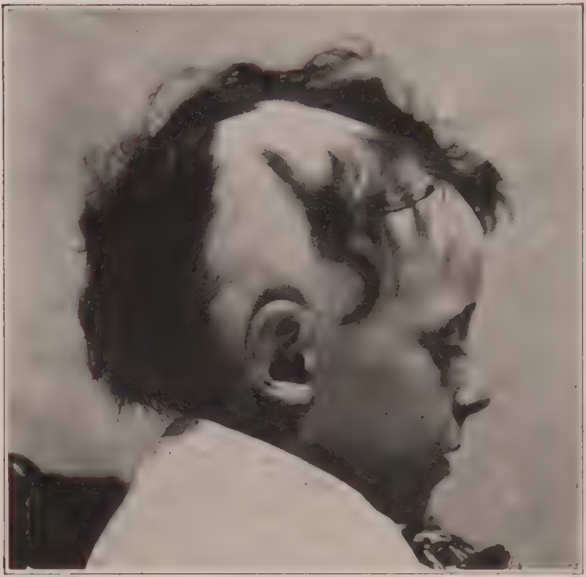

Fig. 85.—Alopecia Areata.

The disease begins in many cases in the occiput, though any part of the scalp may be affected. At times it forms a curious band extending around the border of the scalp, known as ophiasis, a name given it by Celsus.

When a patch is increasing in extent the hairs at the border are loose and may be removed with ease by slight traction. This is not the case when the patch has attained its maximum development and has become stationary. At the border of new patches, less often in the center, there are often a few peculiar broken hairs or stumps known as "exclamation point" hairs. This appearance is noted after epilation. The extrafollicular part is seen to be of normal thickness and often frayed at the end, while the intrafollicular portion is pale and thin and tapers to a slight thickening which is the remnant of the hair bulb.

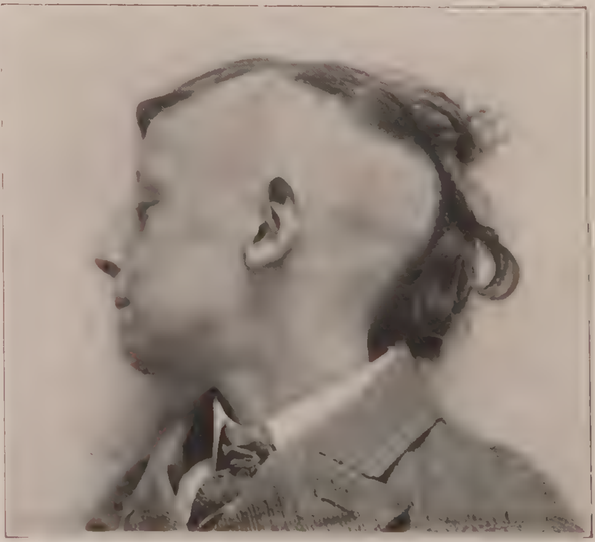

Fig. 86.—Alopecia Areata.

The course of alopecia areata is usually capricious. In nearly all cases a regrowth of hair takes place in a few months to one or two years or longer. The returning hair is downy, pale blond, or whitish at the outset. This may later fall and be replaced by a second or third downy growth which eventually becomes pigmented and of normal texture and vigor. Recurrence is unfortunately fairly common, occurring in 20 per cent of cases, according to Crocker. In a few cases on record, the normal pigment was not restored, the hair remaining whitish throughout life.

Alopecia areata may be accompanied at times by vitiligo, morphea and by dystrophic changes in the nails, such as furrows, ridges and leukonychia. The general health is good as a rule and there are never any constitutional symptoms referable to the disease.

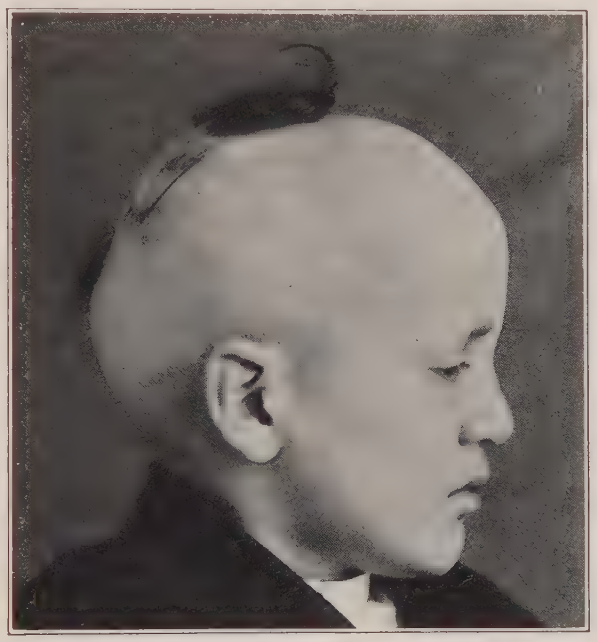

Fig. 87.—Alopecia Areata.

Extensive case. Note absence of scaling or other signs of inflammation. No change in texture of scalp.

Etiology.— Alopecia areata is common in children though less so than in adults. It is rare before the fifth year. In spite of the fact that the disease has been known for so many centuries we are as ignorant to-day of its causation as was Celsus. Numerous theories have been suggested, none of which would satisfactorily explain more than a portion of the cases. It is not impossible that various factors are concerned in the etiology. The infectious theory appears worthy of consideration, in view of various epidemics which have occurred, particularly in France and England. Allowing for errors of observation in some cases, epidemics have occurred in which ringworm could be excluded. The only epidemic which has been recorded in this country was the remarkable one reported by Bowen. This occurred in an institution for girls in Boston, sixty-three out of sixty-nine of the inmates being affected. Subsequently a second epidemic followed the readmission of one of the girls previously affected. The chief argument against the infectious theory is that no causative organisms have been consistently found and in the vast majority of cases the disease does not appear to be communicable. Furthermore, the inflammatory changes which are seen under the microscope are too slight to suggest a microbic origin. The theory of reflex nervous irritation, such as that from carious teeth, has not found many supporters. Some cases may follow injury to nerves, though in a recent study of the etiology, Wright and Harkins conclude that the disease is not of trophoneurotic origin. Some toxic cause would explain more satisfactorily the suddenness of the process, the spontaneous cure, the frequent relapses and lack of pronounced inflammation. At present the cause is unknown and opinions are only speculative.

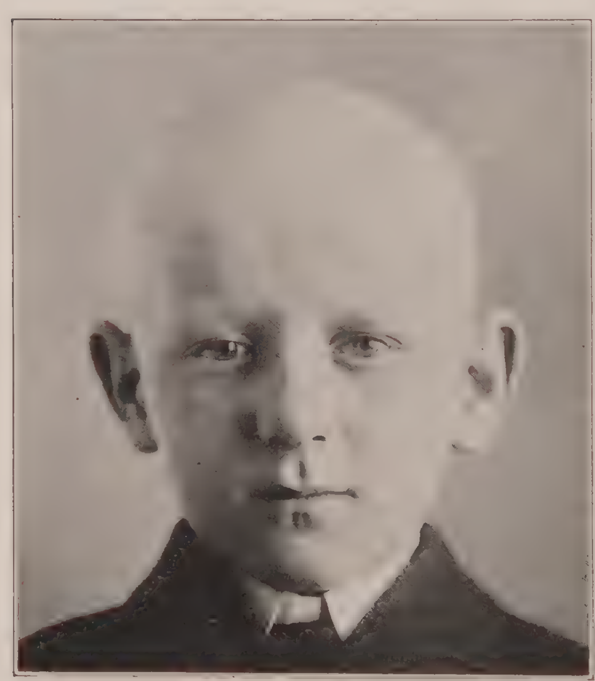

Fig. 88.—Alopecia Areata.

Total loss of hair of scalp, eyebrows and eyelashes. Return of hair doubtful.

Diagnosis.—There should be no difficulty in diagnosis if it is realized that in alopecia areata there are no inflammatory signs, such as redness or scaling, and no scarring or other changes in the texture of the skin. Loss of hair following a severe impetigo or furunculosis of the scalp shows more or less redness and possibly scaling. The moth-eaten type of syphilitic alopecia is seen only in acquired syphilis. This is rare in adults and would be extremely so in children. Folliculitis decalvans occurs almost entirely in adults. Favus is excluded from the presence of scarring not to mention the causative fungus. Ringworm in nearly all cases presents scaling and some suggestion at least of inflammation. The broken hairs or "stumps" in this disease differ from those of alopecia areata in being lusterless, opaque, of the same thickness throughout and breaking off in the follicles on epilation. Those of alopecia areata have the shape of an exclamation point, are translucent, pale, elastic and are described as causing a sort of click on epilation. Considerable difficulty may arise in cases of "black dot" ringworm, in which the patients are bald but show minute black points representing the hairs which have been broken off on a level with the surface of the skin. A bald patch following the use of the Roentgen rays may be identical in appearance with alopecia areata. The history would, however, prevent confusion.

Treatment.—Although the disease is self-limited and nearly always ends in spontaneous recovery, treatment is always worth attempting, as in my opinion it hastens the return of hair. Local treatment is the only one of value, its object being to increase nutrition of the affected areas by causing inflammation. Many remedies have been tried, one of the most useful for localized areas being chrysarobin. Its disagreeable features consist in its well-known property of permanently staining the clothing and temporarily staining the skin and hair. Furthermore, it may cause severe conjunctivitis and would only be suitable for older children. Innumerable other chemical irritants, such as oleate of mercury or liquor ammoniæ fortior, might be mentioned. Pure phenol is useful for small patches.

In my experience, nothing is more satisfactory than the mercury vapor quartz lamps, using either the air- or water-cooled type. I have reported a series of fifty cases treated in this manner with satisfactory results. I do not consider that these lamps have any specific action, but think that they merely provide a convenient and cleanly method of applying local stimulation. The quartz lamps should be used to the point of producing marked hyperemia, and no harm is done if pushed to the point of slight vesiculation. The reaction should be of such intensity as to allow treatment to be given at weekly intervals. One difficulty in treating alopecia areata is that the parents of the child become discouraged and frequently change both remedy and physician.

As we are ignorant of the causation, I do not see that much can be accomplished by general measures, except when a child is obviously in poor health. Furthermore, there are no means at our disposal for preventing recurrence, which is frequent.

Prognosis.—This is good, except when the baldness is complete. Even in the latter case a return of hair is possible, though if it has not taken place at the end of three or four years the outlook is usually hopeless. In the rare cases occurring after nerve injury, the prognosis is good, though the hair is likely to remain white. The prognosis as to the probable duration should always be guarded, as the disease is so capricious. The possibility of recurrence should also be remembered. Local stimulation usually shortens the course of the disease.

Canities

Canities, or gray hair (Latin, *canus*, meaning gray), may be congenital or acquired, localized or universal. The congenital type is rare. and is known as albinismus. In this affection, the hair is always entirely white. In the universal type there is also lack of pigment in the iris. A localized and sharply defined patch of gray hair near the forehead may be present at birth or appear later. It shows a marked hereditary tendency, as in the cases reported by Strickler (six generations).

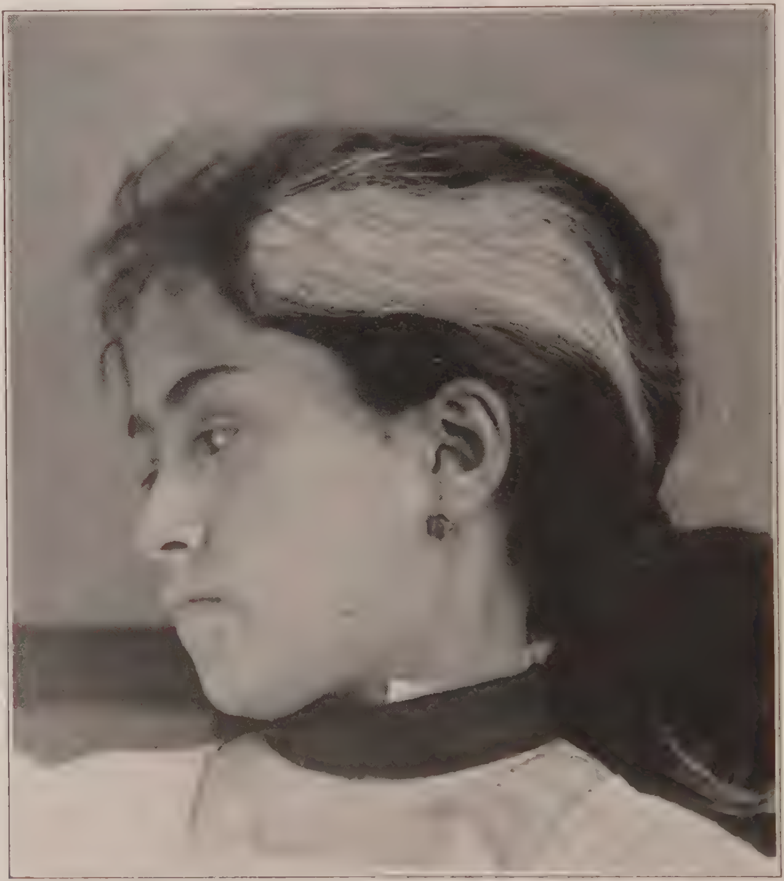

Fig. 89.—Canities (Grayness) of Partial Type Which Is Often Hereditary or Familial.

Acquired canities is rare in childhood and usually consists of grayness rather than complete whiteness. Individual hairs may be white but their admixture with normal hairs gives the grayish appearance. The hair covering areas of vitiligo is often devoid of pigment. The same is true at the outset of the new growth which follows alopecia areata. In this case, the hair usually becomes normal in color, though at times it remains permanently white. Canities may follow local injury to nerves, or occur after serious illness or shock. Ormsby records a case of iron-gray hair in a boy of five who suffered from typhoid fever at the age of three and a half years, followed by complete alopecia with later return of gray hair. The eyebrows and eyelashes were white.

The color change in canities is due to lack of formation of pigment or its disappearance or to the presence of minute air bubbles between the cells of the cortex. The lack of color is uniform, as a rule, throughout the length of the hair, though it is occasionally seen at only the proximal or distal end.

Nothing can be done for gray hair, except, as has been said, to admire it. Hair dyes would rarely be used in childhood. Some of them, such as silver nitrate, are incidentally liable to cause dermatitis.

Ringed Hair

The curious affection known as ringed hair consists of alternating rings of grayness and normal pigmentation, seen almost exclusively in the hair of the scalp. It was first described by Karsch, in 1846, and in 1922 Cady and Trotter were able to find only eighteen cases recorded in the literature. In half of these the disease had been first noticed in infancy and childhood. Cady and Trotter were able to study the disease in three families, in each of which numerous members in three generations were affected. From their studies they concluded that ringed hair may be transmitted by heredity, but that it is not caused by any known pathologic process. It was found in normally pigmented hair and in the ordinary gray hair of advancing years. The appearance was due to spaces in the cortex and medulla of the hair filled with gas and not to atrophy of pigment. The affection was thought to be compatible with normal growth of hair.

THE NAILS

Nail affections are common in children and more so than the records of private or hospital practice would indicate. They include congenital malformations, changes due to general diseases, to traumatism and local diseases of the skin and to trophic or unknown causes. The nail plate alone may be involved, as in fungous infections (ringworm and favus), though in the majority of cases the surrounding tissues are also affected. Abnormality of the nails is usually due to disturbance of the matrix and to a very slight extent of the nail bed. Few changes in the nails are pathognomonic. Our knowledge of the subject is still incomplete, due in part to the difficulty of obtaining tissue for histologic examination.

Congenital Malformations

Congenital malformations of the nails are rare and consist of various degrees of hypertrophy (onychauxis) atrophy or complete absence (anonychia). One or more or rarely all of the nails of the fingers and toes are affected. At times a thickened peglike nail may be implanted on the tip of a deformed finger or toe. In supernumerary fingers and toes, the nails may be absent or, if present, may be single or double, normal in appearance or deformed. Nails are also seen in the rare cases when rudimentary digits are found in abnormal situations. Complete absence of all nails of fingers and toes is exceedingly rare, cases being recorded by Heidings-

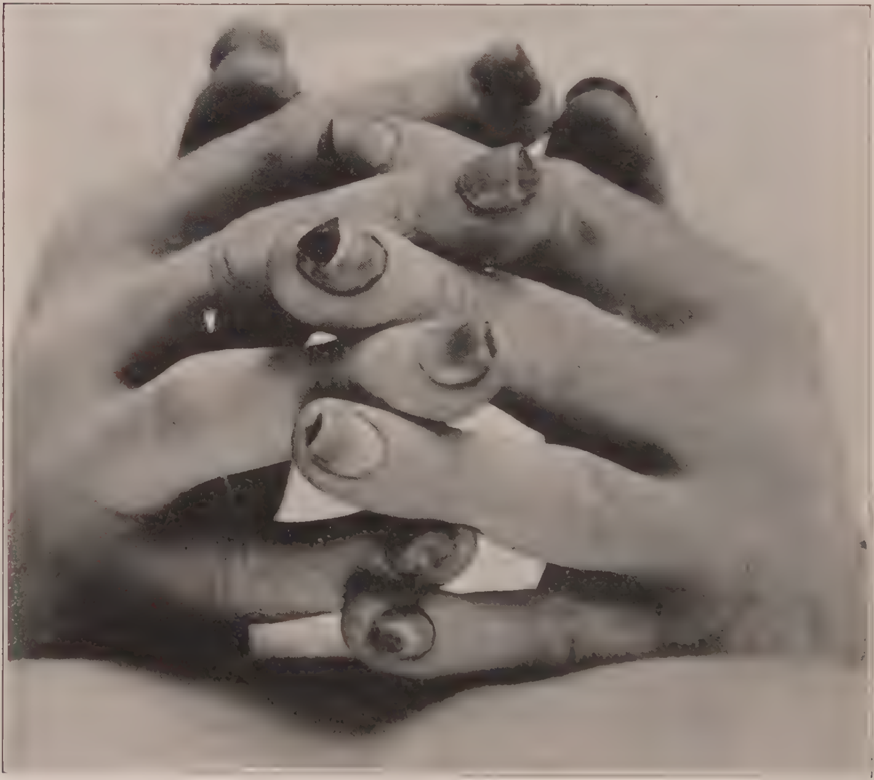

FIG. 90.—ONYCHAUXIS.
Congenital hypertrophy of nails.

feld and by Berge and Weissenbach. In the case of Charteris, the nails were absent from the first three fingers and toes, imperfect on the fourth and normal on the little fingers and toes. A peculiar anomaly is recorded by Sympson, in which the nails of both fingers and toes projected upward for a distance of one-half to three-quarters of an inch. Zeisler records a somewhat similar case. Subungual hyperkeratosis is reported by Murray in four individuals in three generations, and Tobias records dystrophic changes in the nails in twelve persons in four generations.

Congenital affections of the nails are frequently seen in epidermolysis bullosa, the severe types of ichthyosis and in syphilis. They also occur in association with congenital alopecia and various defects of hereditary origin, some of which may not appear until later years.

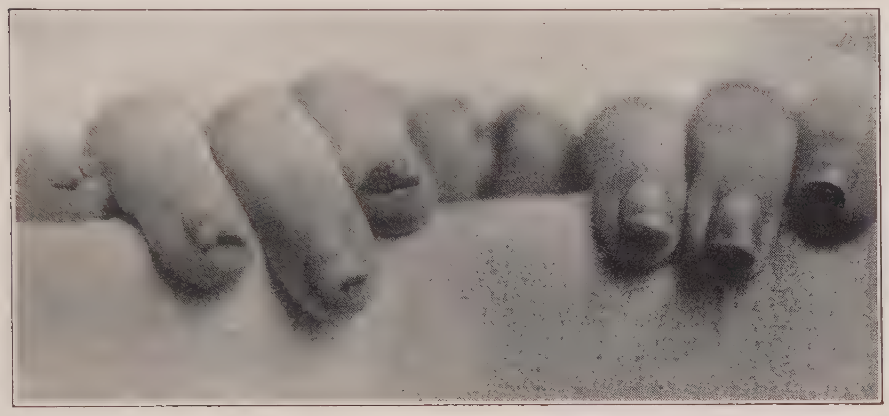

FIG. 91.—PACHYONYCHIA CONGENITA, ASSOCIATED WITH CUTANEOUS CHANGES.

Onychogryphosis.—A peculiar type of hypertrophy in which the nail may be clawlike or curved in different directions, like a ram's horn, is known as onychogryphosis. This condition may be congenital or acquired, the latter form occurring only in adults. The congenital form is extremely rare, though I have had the occasion to report one case. The patient was a five-year-old girl whose nails were noted to be yellowish a few days after birth. They soon became thickened and sufficiently so at the end of two months for the parents to seek medical advice. At the age of five years all of the finger and toe nails were greatly thickened, especially at the distal ends, and five of the toenails showed characteristic changes of onychogryphosis. These were curved backward, forward and then laterally. The skin was also dry and rough, there was moderate keratosis pilaris and a fairly well-marked hypertrichosis of the cervical and dorsal regions.

Pachyonychia Congenita.—A rare form of hypertrophy of the nails associated with other changes in the epidermis was described by Jadassohn and Lewandowsky under the title of pachyonychia congenita. The nail plates were thick, elevated and extremely hard, being firmly attached to the nail bed and unaccompanied by any other abnormality of the surrounding tissue. There were small warty growths on the arms and legs, a condition of the nose suggesting granulosis rubra nasi and leukokeratosis of the tongue. I have lately had occasion to study a case of this kind in which, however, the lesions of the nose and tongue were absent. My case forms part of a report by Andrews and Strumwasser who record another, almost the counterpart of my own.

Traumatic Affections

Traumatic affections such as wounds, foreign bodies and ingrowing nail do not concern us, as they belong to the domain of surgery. The common affection known as hangnail consists of a superficial tear of the thin epidermic projection at the base of the nail (eponychium) which, being dry and delicate, is easily torn. A fissure then extends into the epidermis at the corner of the nail which may involve the cutis, when the little tag or hangnail is not properly treated. Such apparently trifling lesions may be the source of annoying or even serious infections. Removal by manicure scissors with application of iodin and a collodion dressing effects a cure.

From severe and prolonged scratching, the free border of the nails may be more or less worn away and present a concave in place of the normal convex extremity. In such cases, the surface of the nail plate may be smooth and shiny like a mirror. Various dystrophic changes, such as longitudinal furrows and ridges, brittleness and splitting or even total loss of the nails, may result from an excessive amount of Roentgen rays. The dystrophic changes in the nails as a result of chemical or mechanical irritation in industrial work would rarely be seen in children.

Biting the nails (onychophagia) is a common habit of children. As a result the free border is removed, the remaining part of the nail being in close contact with the nail bed. The distal ends are frayed and ragged and at times as much as one-third of the nail may be absent. No permanent damage results and, when the habit is controlled, the nail again grows normally. Biting the nails is especially common in school children, being often due to imitation. In some schools it has been found that 25 or 30 per cent of the pupils were victims of this habit. It has been claimed that it is a sign of degeneration, such children, according to Berillon, showing anomalies of teeth and ears, being awkward in their bodily movements and averse to mental effort. Heller does not take such an extreme view, but says that there is a certain causal relationship between physical and mental development and the habit of habitually biting the nails.

Constitutional Diseases

General diseases may cause changes in the nails, the most important being acute febrile and nervous affections and syphilis. Following an acute febrile disease, such as pneumonia, rheumatism, the exanthemata or a severe shock, *transverse furrows* may appear in the nails. They are due to a temporary disturbance of nutrition and are seen first at the proximal part of the nail within thirty or forty days (according to Heller) after the causative illness. They may involve some or all of the nails, that of the thumb being most frequently and markedly affected. These furrows, which are known as Beau's lines, extend across the entire width of the nail and vary considerably in depth. They are often rather inconspicuous. The situation of the furrows changes constantly with the forward progression of the nail. From their position it is possible to estimate the time which has elapsed since the illness which caused them. Between five and six months are required for the growth of a new nail. The daily growth is approximately one-tenth of a millimeter or three millimeters per month. At times two or even three parallel furrows are observed, indicating recurrence or exacerbation of the original illness. It may be interesting to know that analogous changes occur in the lower animals, such as the ring at the base of a cow's horn after the birth of a calf, or the ring in a horse's hoof after severe sickness. The above described furrows do not occur in chronic infectious diseases, but instead there may be various atrophic or hypertrophic changes in the nails.

The so-called Hippocratic nail, which occurs in pulmonary tuberculosis, is curved and thickened, the terminal phalanx being enlarged like the head of a drumstick. The nails of the thumb and index finger are most often affected.

Diseases of the nails may be due to direct or indirect action of affections of the peripheral nerves or the central nervous system, such as neuritis due to traumatism and internal causes, Raynaud's disease, syringomyelia, juvenile tabes, poliomyelitis and other affections. The resulting changes include atrophy, hypertrophy and loosening or shedding of the nail.

Syphilitic changes in the nails are discussed in the volume of this series devoted to prepubescent syphilis.

Localized Dermatoses

Localized dermatoses affecting the fingers and toes are frequently the cause of nail disease. Pyogenic infection of the surrounding tissues (especially impetigo contagiosa) is common in children. There may be localized vesicles or pustules at the corner of the nails or a diffuse paronychia, with redness, swelling, pain and suppuration. When the matrix is involved, dystrophic nail changes occur, such as opacity, thickness, ridges or furrows and partial or complete separation of the nail plate. Ulceration and permanent damage may result. One or several finger or toe nails may be affected.

As eczema is a common disease of childhood it is not surprising that the nails should at times be involved, but according to the statistics of C. J. White, the nails are seldom affected in children suffering from this disease. Changes due to eczema are seen first at the proximal portion of the nail and extend downward, as opposed to those of ringworm and psoriasis which begin, as a rule, at the distal portion and extend upward. A great variety of dystrophic changes may be observed, including opacity, discoloration, furrows and ridges, brittleness, splitting and loosening of the nails. Punctate depressions similar to, but less marked than those of psoriasis, may be present.

Psoriasis of the nails, according to Heller, occurs in 9 per cent of cases of this disease. The two most common and characteristic changes are subungual hyperkeratosis and punctate depressions. These were noted in 57 per cent of White's cases. Underneath the free border of the nail, friable granular masses appear and extend toward the root, raising the plate from the underlying bed. The granular masses crumble and fall, leaving extensive free spaces beneath the nail. Punctate depressions or pits are more common and more marked than in any other affection of the nail. Some consider them pathognomonic of psoriasis. In a patient seen twenty years ago by the late J. N. Hyde, a diagnosis of psoriasis was made from the presence of such pits, no other evidence of the disease being present. A prediction was made that psoriasis would eventually appear on the skin and this proved to be true when the patient consulted me seventeen years later. The appearance of these tiny depressions or pits has been likened to the outer surface of a thimble. Another change that is considered characteristic in advanced cases is a deep transverse furrow. This was noted in 38 per cent of White's cases, as was also discoloration of the nail in the same percentage. Various other dystrophic changes may occur, the nail being shed at times. The disease may affect one or more or even all of the nails without showing any symmetry. In the large majority of cases, the outlook for ultimate recovery is good, though psoriasis of the nails is apt to persist for a long time and is rebellious to treatment.

Other diseases of the skin which occur in the fingers and toes and affect the nails, include epidermolysis bullosa, exfoliative dermatitis, pityriasis rubra pilaris and, less often, pemphigus and dermatitis herpetiformis. Alopecia areata, especially of the extensive or universal type, is not infrequently associated with atrophic changes in the nails, such as dryness, onychorrhexis and leukonychia.

Diseases of the nails due to fungi (ringworm and favus) have been considered under those diseases.

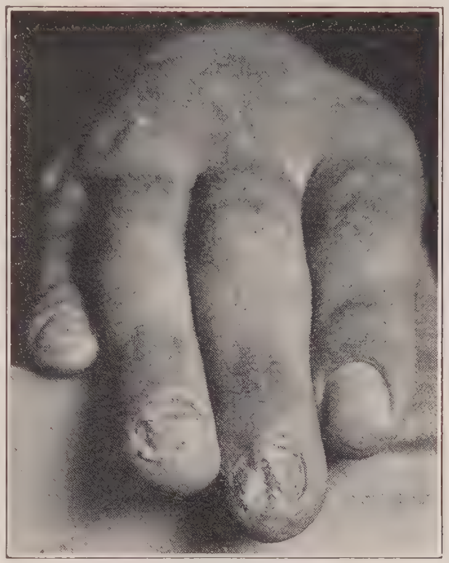

FIG. 92.—ONYCHOMYCOSIS.
Ringworm of nails, affecting distal parts especially.

Miscellaneous Affections

Onychorrhexis is an atrophic condition of the nail plate which is longitudinally striated and brittle. The striæ are parallel and closely set, the plate is thin and soft and the free border is frayed. In severe cases, the nails are split and broken. A few or all of the finger nails may be affected. Those of the toes may show similar though less marked changes. In the case of a ten-year-old girl reported by Dubreuilh and Fresche, there was a history of the same disease occurring in other members of her family.

Leukonychia *(white nail)* in the form of punctate white spots is a common affection in children. In rare cases, there are transverse striæ or the entire nail may be white. The white spots or striæ appear first near the lunula and move forward with the growth of the nails. A few or all of the nails may be affected. The disease may be congenital and hereditary. In the punctate form traumatism is said to be frequently causative, though there must be a peculiar predisposition of unknown origin in such cases. The affection may also follow severe illness. The whitish appearance is due to minute air bubbles introduced between the imperfectly keratinized cells of the matrix.

Koilonychia (*spoon nail*) is a rare condition in which the nail is concave, both longitudinally and transversely, instead of convex. It forms a central hollow which suggests a shovel or spoon. The nail plate is thin and everted at one or both corners. The process begins in one finger nail, others being gradually affected. It may be congenital and familial. It has been seen in association with severe constitutional diseases and with leukonychia, while in other cases no disturbance of health has been present.

Paronychia, also known as whitlow, may occur at times without any disturbance of the nail. It consists of redness and swelling of the posterior and lateral nail folds, affecting part or all of these structures. Pain and tenderness are present, and on pressure a drop of pus may often be expressed from beneath the nail fold. In the very severe cases, there is swelling of the entire finger, necrosis of tissue and even involvement of bone. In the mild and more chronic cases the swelling, pain and tenderness and purulent discharge may be slight. Paronychia may be caused by infection with either staphylococci or streptococci.

General Diagnosis

The diagnosis of nail affections is often difficult. Many types of disease produce similar or identical changes, while on the other hand a single cause may lead to many dissimilar changes in the nail. In congenital or hereditary affections, an accurate history is of value. It should, however, be remembered that certain anomalies of congenital origin may not appear until later years. History of traumatism or general disease and recognition of an existing local disease of the skin may solve the problem. A general cause is suggested by symmetry, a local cause by asymmetry of the process. Such a rule, however, is of limited value, as ringworm may affect all of the fingers of both hands, while the Hippocratic nail may be limited to one hand.

A diagnosis of onychomycosis may often be made from the clinical appearance. In this affection the process usually begins at the distal end of the nail, is frequently asymmetrical and is not accompanied by inflammation of the surrounding tissues. In some cases the diagnosis may be impossible, except by demonstration of the causative fungus. Unfortunately, this may be difficult by either microscopic examination or culture. In psoriasis, the probable diagnosis can often be made by the punctate depressions and separation of the nail from the underlying bed. These depressions are, however, not absolutely pathognomonic. For the recognition of syphilis, the Wassermann test may be necessary. Even with a complete history, physical examination and laboratory aids, it is frequently impossible to discover the cause of the affection and to do more than give it a name.

Treatment

The treatment of nail affections is in general rather difficult and often unsatisfactory. When due to skin diseases of the surrounding tissues, such as eczema, psoriasis or ichthyosis, the usual methods of treating such conditions will improve or cure the nail condition. Psoriasis of the nails however, is often stubborn and may resist all therapeutic attempts. Treatment of onychomycosis has been already considered. In cases where there is marked hypertrophy, the nails may be softened by soaking in hot water containing green soap or borax and the excessive growth removed by cutting or filing. In onychogryphosis it may be advisable to remove the nail and to destroy the matrix by cauterization, thus preventing further growth. When the nails are brittle and tend to break and split, all unnecessary trauma should be avoided and lanolin or other emollient applied. The patches of leukonychia may be made less conspicuous by the use of cosmetics. In many cases of hypertrophy, atrophy or dystrophy of the nails we are entirely ignorant of the causation and are forced to rely on general tonic measures or on arsenic. The latter is at times of value when its administration is prolonged.

Nail changes which are secondary to paronychia may often be cured by treating the latter condition. For this purpose, I have used with excellent results the remedy suggested by Morrow and Lee, a saturated solution of chrysarobin in chloroform (about 4 per cent). Patients are instructed to soak the affected fingers or toes in hot water three times a day and to follow this with the introduction underneath the nail fold of a few drops of the chrysarobin solution. This is done most conveniently by means of a flat orange-wood stick. A cure results in a month or two in the majority, even of the severest cases. I have not seen rapid cure in one to three weeks, which Morrow and Lee obtained in their series of sixteen cases.

BIBLIOGRAPHY

Alopecia Congenita

BALZER, F., and BARTHELEMY, R. Alopécie congénitale diffuse et généralisée à type familial. Bull. Soc. franç. de dermat. et syph., Paris, 1914, 25: 321.

DUBREUILH, W., and PETGES, G. Des alopécies congénitales circonscrites. Ann. de dermat. et syph., Paris, 1908, 9: 257.

HYDE, J. N. Congenital Alopecia as an Expression of Atavism. J. Cutan. Dis., New York, 1909, 27: 1.

KINGSBURY, J. Alopecia Congenita. J. Cutan. Dis., New York, 1906, 24: 418.

Nicolle and Halipré. Sur un cas de dystrophie unguéale et pilare familiale. Ann. de dermat. et syph., Paris, 1895, 6:675.

Oliver, E. A., and Gilbert, N. C. Congenital Alopecia. Arch. Dermat. & Syph., Chicago, 1926, 13:359.

Monilethrix

Anderson, M. Hereditary Trichorrhexis Nodosa. Lancet, London, 1883, 2:140.

MacKee, G. M., and Rosen, I. Monilethrix. A Clinical and Histological Study with a Report of Six Cases and a Review of the Literature. J. Cutan. Dis., New York, 1916, 34:444.

Sabouraud, R. Monileform Hair. Ann. de dermat. et syph., Paris, 1892, 3:781.

Alopecia Symptomatica

Stillians, A. W. Abt's Pediatrics, Philadelphia, W. B. Saunders Co., 1926, 8:245.

Sutton, I. C., and Timme, A. R. Trichotillomania. Ann. Clin. Med., Baltimore, 1926, 5:402.

Alopecia Areata

Bowen, J. T. Two Epidemics of Alopecia Areata in an Asylum for Girls, J. Cutan. Dis., New York, 1899, 17:399.

Crocker, H. R. Diseases of the Skin, Philadelphia, P. Blakiston's Sons & Co., 1903, 3d Ed., p. 1217.

Fox, H. The Treatment of Alopecia Areata with Quartz Lamps. (Kromayer and Alpine) Report of 50 Cases. Med. Rec., New York, 1920, 98:895.

Wright, C. S., and Harkins, M. J. Etiology of Alopecia Areata with Special Reference to the Effect of Experimental Nerve Injuries. Arch. Derm. & Syph., Chicago (in press).

Canities

Cady, L. D., and Trotter, M. A Study of Ringed Hair. Arch. Dermat. & Syph., Chicago, 1922, 6:30.

Ormsby, O. S. Case report. J. Cutan. Dis., New York, 1909, 27:258.

Nails

Andrews, G. C., and Strumwasser, S. Pachyonychia Congenita. N. Y. State J. M., N. Y. (in press).

Berge, A., and Weissenbach, R. J. Complete Congenital Absence of the Nails of all the Fingers. Ann. de dermat. et syph., Paris, 1912, 3:244.

Berillon. Frequency of Onychophagia and Automatic Habits in Degenerated Subjects. Med. Week., Paris, 1894, 2:357.

Dubreuilh, W., and Fresche. Onychorrhexis. 3rd Internat. Cong. Dermat., Off. Trans., London, 1896, p. 845.

Heidingsfeld, M. L. Congenital Absence of Finger and Toe Nails (Anonychia Congenitalis Totalis). Internat. Cong. Dermat., London, 1913. Sec. 13, Part 2, p. 93.

Heller, J. Die Hautkrankheiten der Nägel. Berlin, 1900.

Jadassohn, J., and Lewandowski, F. Iconographia Dermatologica. Fasc. 1, p. 29.

Morrow, H., and Lee, A. W. Paronychia. J. Cutan. Dis., New York, 1915, 33: 278.

Murry, F. A. Congenital Anomalies of the Nails, Four Cases of Hereditary Hypertrophy of the Nail Bed, Associated with a History of Erupted Teeth at Birth. Brit. J. Dermat., London, 1921, 33: 409.

Sympson. Congenital Deformity of the Nails (Onychogryphosis). Lancet, London, 1888, 1: 722.

Tobias, N. Hereditary Familial Dystrophy of the Nails. J. Am. M. Ass., Chicago, 1925, 84: 1568.

White, C. J. The Clinical Study of 485 Cases of Nail Disease. Boston M. & S. J., 1902, 147: 537.

Zeisler, J. Trophic Affections of the Nails. J. Cutan. Dis., New York, 1901, 19: 511.

CHAPTER XIV

DISEASES OF THE SWEAT AND SEBACEOUS GLANDS

THE SWEAT-GLANDS

Diseases of the sweat-glands may be either functional or organic, and are common in children. Functional disturbances include increase, decrease or absence of sweat, the presence of disagreeable odor or abnormal constituents. Organic affections occurring in children include miliaria and granulosis rubra nasi.

Hyperidrosis

Symptoms.—It is hard to draw the line between physiologic and pathologic sweating. Some individuals perspire more than others, and in certain regions, such as the palms, soles, axillæ and genitocrural folds, sweating is normally greater than elsewhere. Physiologic sweating is greater after exercise, mental excitement and in hot weather. Pathologic sweating or hyperidrosis may be general or local. The former is characteristic of pulmonary tuberculosis and occurs in acute articular rheumatism, in cachectic states and at the termination of febrile diseases. Severe generalized sweating may lead to exhaustion and has even been the cause of death. It is seen especially in neurotic subjects and in association with functional and organic nervous diseases.

Localized sweating is of special dermatologic interest. It is nearly always symmetrical and confined to one or more of the areas above mentioned where sweat-glands are especially numerous. It may be continuous or intermittent and at times profuse enough to drip from the affected regions within five minutes after thorough drying with a towel. In rare cases the process may be unilateral and limited to a small area. Such a case is shown in Sutton's textbook. The patient was a boy who presented an area of sweating, 5 centimeters in diameter, near the inner extremity of the left eyebrow. At times, sweating has been confined to one side of the entire body. Circulatory disturbances are often associated with hyperidrosis, the hands and feet feeling cold and clammy to the touch. Flatfoot is frequently seen in association with sweating of the soles. As a result of hyperidrosis, with resulting maceration of the skin, opportunity is given for infection with bacteria and fungi. This is true of boils and abscesses, intertrigo and ringworm of the feet (dermatophytosis).

Etiology and Pathology.—Hyperidrosis may occur at any age, even at birth, but is seen most often about the age of puberty. Children of neurotic type and those with poor circulation are most often affected. Localized unilateral sweating may be due to nerve irritation from pressure of scars or tumors. Sweating of one side of the neck may be due to pressure on the cervical sympathetic by enlarged glands. Pressure on the plantar nerves in flat-foot is thought to account for the frequently accompanying hyperidrosis. Localized sweating in rare cases has been known to follow the taste or smell of certain foods.

Treatment.—In the treatment of generalized hyperidrosis an attempt should be made to ascertain and remove the cause. If this is not possible, tonics, such as iron or arsenic, may be tried. Belladonna may be cautiously used, though its effect is only temporary. For localized sweating, many remedies have been used. The only one which has produced permanent results in my experience is roentgenotherapy. This is, however, to be reserved for severe sweating of the palms and soles and should always be used with great caution. Atrophy of the glands may be produced and their overactivity lessened. If too great an amount of Roentgen rays is given, the palms or soles may be made abnormally dry, a condition which may be more undesirable than excessive sweating. The most useful remedy for the majority of cases is aluminum chlorid. Stillians recommends a 25 per cent solution in distilled water to be applied every second or third day and allowed to dry. In prescribing aluminum chlorid, the fact that it is incompatible with alkalis and sulphur should be remembered. An alcoholic solution of formalin (1 per cent) is also frequently recommended. Sweating of the feet may be relieved by washing frequently in lukewarm water or dilute alcohol, followed by the free use of a dusting powder containing 5 to 10 per cent of salicylic acid (see Formulary, p. 347. Frequent change of hosiery (once or twice daily) is necessary. Flat-foot, if present, should receive proper attention.

Bromidrosis

Malodorous sweat is often, though not necessarily, associated with hyperidrosis. It may be general or local. In the latter case it affects the axillæ, genitocrural region and particularly the feet. The disease may be due to bad smelling substances excreted with the sweat or to the odor derived from decomposition of the sweat after its excretion. The generalized form is observed in certain diseases such as typhoid fever, cholera, sepsis and uremia and may be due to ingestion of certain drugs or foods, such as asafetida, valerian, sulphur or garlic.

The form of localized bromidrosis for which medical aid is most often sought is that which occurs in the feet. This is seen in children though it is much more common in adult males. It is largely due to the action of the *Bacillus fœtidus*, an organism found in the soil. The treatment of this condition is essentially that of hyperidrosis. Foot baths of a solution of potassium permanganate, 1 :1000 or stronger, are recommended by Ludwig Weiss. Their effect is deodorizing as well as curative.

Anidrosis

Complete absence of sweat has been observed in rare instances. A more or less marked decrease in the sweat function is seen in certain general diseases, such as myxedema, hyperthyroidism and diabetes. It also accompanies certain skin diseases such as dermatitis exfoliativa and notably ichthyosis. In the latter affection it may be counteracted to a certain extent by frequent bathing and oily applications. Persons with diminished sweat secretion are more liable to suffer from heat exhaustion or sunstroke than normal individuals. Localized absence of sweating is seen in scar tissue, scleroderma, leprosy and various injuries or diseases of nerves.

Chromidrosis

This is an extremely rare condition in which various pigments are excreted in the sweat. A few such cases have been observed in children. The disease is always localized and appears most often on the face, especially about the eyes. In most of the cases (more properly called pseudochromidrosis), the color is due to the action of certain pigment-producing bacteria which happen to be present on the skin. Phosphorescent sweating has been observed in those taking phosphorous or after eating putrid fish in which certain products are formed by photogenic bacteria.

Hematidrosis

This exceedingly rare phenomenon, consists of blood excreted in the sweat upon the normal unbroken skin. A few cases have been recorded in infants and in children suffering from hemophilia.

Sudamina

Sudamina, also known as miliaria crystallina, is an ephemeral disease occurring after profuse sweating. The eruption appears suddenly and consists of minute, delicate, shiny and translucent vesicles. They are closely set but do not coalesce. They remain for a few days, show no tendency to spontaneous rupture and disappear by absorption. The eruption is seen chiefly on the trunk and is usually of limited extent though it may at times be extensive. It causes no subjective symptoms. While the individual lesions last only a few days to a week, the affection may be continued longer by new crops of vesicles.

Sudamina consists of a non-inflammatory accumulation of sweat in the superficial part of the horny layer of the epidermis. The disease is seen after excessive sweating due to any cause. It is common in febrile diseases. It is a harmless, self-limited affection requiring little attention.

Miliaria

Miliaria, commonly, known as prickly heat or lichen tropicus, is common in infants and to a less degree in children. The eruption appears suddenly and consists of pinhead-sized vesicles, papules or vesicopapules. Unlike sudamina, there is evidence of inflammation, the lesions usually showing a pinkish areola. They are closely set but do not coalesce, and are seen chiefly on the trunk and flexor surface of the extremities. The papules flatten gradually and disappear, and the vesicles are absorbed or desiccate. At times the vesicles may become purulent or small abscesses or intertrigo may supervene. More or less burning or pricking sensation or mild itching is always present. There are no constitutional disturbances. The duration of the eruption varies from a few days to a fortnight, though it may continue longer if the cause is not removed. Relapses are frequent.

Miliaria is due to excessive heat resulting from hot weather, overheated houses or an undue amount of warm clothing. It is more common in those who perspire freely and is seen very frequently in infants and in fat children. There is considerable difference of opinion regarding the pathologic process. Some think it is related to the sweat function, while others consider that it has no such relation. Darier classes it with impetigo, having constantly found staphylococci in the lesions.

The diagnosis is usually made without difficulty from the history of excessive heating of the skin, the rapid onset of discrete papules and vesicles with evidence of mild inflammation, sweating and absence of constitutional disturbances. In eczema, the onset is slower, the eruption is usually more limited, the lesions are larger and always tend to coalesce and form patches, the vesicles rupture easily, itching is always severe and oozing may be present.

Prophylaxis is important in the treatment of this affection, and consists in avoiding undue heating of the skin. The local treatment consists in keeping the skin clean by bathing, followed by soothing lotions or dusting powders.

Granulosis Rubra Nasi

Granulosis rubra nasi is a rare disease which is seen almost exclusively in children. It was first described by Luithlen, in 1900, the above name being given it later by Jadassohn. Mirolubow was able to collect fifty-eight case reports in 1906, and others have been added in a recent review by Beeson, including ten American cases.

Symptoms.—Usually confined to the nose, the disease exhibits diffuse redness, localized sweating and minute papules. The redness fades gradually into the surrounding normal skin. The papules are pin point to pin head in size and red or reddish-brown in color. They are fairly symmetrical and show no tendency to coalesce. Between them and on their tips, droplets of sweat are frequently seen. At times there may be thick walled vesicles containing clear fluid, similar to those of hydrocystoma which are seen chiefly in adult women. Small pustules occasionally form which soon dry and form crusts and disappear without any ulceration or scarring. Occasionally, slight evidence of telangiectasia is noted. Pressure on the affected area causes temporary disappearance of color and the nose feels cold to the touch. Subjective symptoms are absent with the exception of occasional slight itching. The mucous membranes are not affected. The course of the disease is chronic, disappearing nearly always at the age of puberty and leaving no trace.

Etiology and Pathology.—The disease has been observed in infants of six months but occurs usually in childhood from the sixth to the sixteenth year. It is seen most often in those who are delicate and poorly nourished, and affects both sexes about equally. The circulation is often impaired and there may be associated hyperidrosis of the hands and feet. The disease has been observed in more than one member of a family. Its cause is unknown. Histologically there is a simple inflammatory reaction, especially about the sweat apparatus.

Diagnosis.—The diagnosis should be made without difficulty by the occurrence in delicate children of persistent, tiny papules and localized sweating, which is nearly always strictly limited to the nose. The disease may simulate rosacea, but this is excluded by the fact that the latter affection is seen only in adults. Papular acne is not apt to be limited to the nose and always shows comedones which are not present in granulosis rubra nasi. Lupus vulgaris may cause confusion, though the differentiation is easily made by the diascope. In granulosis rubra nasi the color disappears completely under pressure with a glass slide, while in lupus the characteristic yellowish-brown stain remains. Furthermore lupus may show ulceration, scaling and scars which are absent in the former disease.

Treatment.—This is usually unsatisfactory, especially when salves and lotions are used. Several authors report good results from the Roentgen rays and from freezing with carbon dioxid snow. The general health should be improved by hygienic measures and tonics.

Prognosis.—This is good as it disappears usually at puberty and leaves no trace.

THE SEBACEOUS GLANDS

Comedo

The comedo or blackhead is the essential lesion of acne vulgaris though it may occur independently of this disease in infants, children and adults. The comedo is a plug composed of hyperkeratotic scales and sebaceous matter occupying the distended pilosebaceous follicle. It projects slightly above the surface, the tip being blackish from chemical changes and not from dirt. It may be expressed as a little wormlike thread familiar to all. There may be a single lesion with two heads, known as bridge comedo.

Comedones are often seen in the newborn. They suggest the appearance of milia and occur principally on the nose, cheeks and forehead and disappear spontaneously in a few days.

Grouped comedones are occasionally seen in infants and young children as well as in adults and were first recognized in children by Crocker. In infants they occur mainly on the cheeks and temples and in children on the forehead and occipital region, extending at times on the scalp, neck and shoulders. They are usually closely aggregated, associated with an oily skin and often symmetrical. They are of medium size and their contents are firmer than those of acne. They may become inflamed by traumatism or by heat and moisture. They have been observed to occur simultaneously in several members of a family and in schools, suggesting some microörganism as the cause, and have been known to follow applications of camphorated oil or linseed poultices. The disease is thought by some to be due to local irritation, lesions on the forehead in boys being possibly caused by friction of a dirty cap while those on the cheeks of infants may be due to contact with the mother's skin. Peculiar features, according to Crocker, are their apparent local causation, tendency to grouping, involvement of the scalp, slight tendency to inflammation and ease of removal. Treatment by friction with soap and water and by sulphur lotions is usually sufficient for a cure.

An affection in newborn infants has been described by Kraus as acne neonatorum, consisting of numerous small comedones and papules and at times pustules associated with an oily skin. The lesions in the cases observed by Kraus were present on the nose and cheeks and lower part of the center of the forehead. The eruption disappeared without any scarring, after lasting a number of weeks in all of the cases.

Acne Vulgaris

Symptoms.—The type of acne vulgaris which is extremely common in adolescence often makes its first appearance at or shortly after the age of puberty. At times it begins before this period. The basis of the disease is an oily seborrhea and the primary lesion is always the comedo. The onset and development of the disease are gradual as a rule. The eruption is distinctly polymorphous, the lesions varying greatly in number and severity. In addition to comedones they may include papules, deep-seated abscesses and scars. The papules are reddish and highly inflammatory. The pustules may be small and superficial or large, deep seated, indurated and somewhat painful. Depending on the severity of the process, more or less scarring results. In the majority of cases, in older children, the disease is usually of a rather mild type though it may later become extensive and severe. The favorite sites of acne are the face, upper two-thirds of the back, deltoid region and chest. The eruption may be confined to the face and in any situation is always symmetrical. The subjective symptoms consist of soreness, when large pustules are present, frequent mental distress and embarrassment due to disfigurement.

The course of individual papules or pustules is relatively short, the majority lasting but a few days or weeks. By constant appearance of new lesions, the process may be continued for years. It always disappears spontaneously, often before the twenty-second year, but at times extends through the third decade. The general health may be good or there may be constipation, indigestion or anemia.

Etiology and Pathology.—Acne vulgaris is seen with equal frequency in both sexes and in all classes of society. It is neither an evidence of uncleanliness nor of sexual abuse. There is some difference of opinion as to the causation. It is doubtless related to changes in the sex glands, incident to puberty. According to some authorities, the entire process including the underlying seborrhea is microbic in origin. There is no doubt about the presence in the comedones of a small bacillus called the microbacillus of seborrhea by Sabouraud and acne bacillus by Unna and by Gilchrist. The difference of opinion exists as to whether this organism causes the comedones or is a secondary invader. The majority favor the first view. There is a general agreement that the pustulation is due to some variety of staphylococcus. Contributing causes include constipation, anemia, too free indulgence in "sweets" and indigestible food. Histologically, the pustules are due to folliculitis and perifolliculitis with a central keratotic plug, the comedo. Invasion of the tissue surrounding the follicle produces the scarring.

Diagnosis.—The history of gradual onset near the age of puberty, the polymorphous eruption of comedones, papules and pustules are familiar to all and could hardly fail to be recognized. An acne-like eruption may be due to the ingestion of bromids or iodids, but comedones are lacking and the lesions may affect areas in which acne does not appear.

Treatment.—General measures consist of a plain wholesome diet and relief of any existing constipation or other disorder. It is certain that the disease cannot be cured simply by diet. Treatment of acne is essentially local and that alone is sufficient, in my opinion, to effect a cure. One of the simplest methods consists in the use of green soap or sulphur preparations which cause more or less desquamation (see Formulary, p. 348). Vigorous friction with tincture of green soap, followed by lotio alba, is of value in mild cases. If sufficient reaction is not produced in this manner, a lather formed by green soap may be allowed to remain on the skin for several hours or over night, the process to be repeated until peeling of the skin results. When this is too excessive, cold cream or other bland greasy applications may be temporarily used. Mechanical treatment consists of removal of comedones by a suitable instrument (comedo scoop) and the incision of pustules. Vigorous scraping by means of a dull ring curet, as long advocated by my father, is a most useful procedure for mild cases, though somewhat disagreeable. By this method the skin is reddened, many of the comedones are removed and congestion of the papules is lessened by causing slight bleeding at their summit. Such a method is not suitable for deep-seated indurated pustules which are mostly seen in older persons. Exposure to sunlight is often of temporary value and the same is true of the mercury vapor quartz lamps, though a marked erythema which is often caused by their use is not very agreeable. In the majority of cases in adolescents or adults, when the disease is well marked, the best results are undoubtedly obtained by the Roentgen rays. In the milder types in children the use of this agent is seldom necessary. My opinion regarding vaccines in acne is a very positive one. I consider them practically worthless. This applies especially to vaccines of the acne bacillus alone. Staphylococcus vaccines may be of slight service in pustular cases, though not enough to warrant their use. My opinion of vaccines in acne has been previously expressed in a comparative study of their use with that of the Roentgen rays. The comparison was not flattering to vaccine therapy.

Prognosis.—This must be guarded as to the ultimate severity of the disease and the amount of scarring it may produce. While acne is usually mild at the outset, when occurring in older children it may later become severe. It responds favorably to treatment.

Milium

Milium (from the Latin meaning a millet seed), is a small whitish or yellowish globular body which projects slightly above the surface of the skin. It occurs most often on the face, especially on the eyelids or cheeks and on the genitals. While milia are seen most often in adults they are not uncommon in newborn infants. They are few in number as a rule though they may be numerous. The disease is also seen in scars and in epidermolysis bullosa. It is an epidermic or dermic retention tumor, usually formed by growth of the horny layer over the opening of a sebaceous follicle with resulting retention of sebum. The eruption in infants disappears quickly without treatment. In older children the lesions are easily cured by incision and expression of their contents.

Atheroma

(*Sebaceous Cyst*)

Atheroma, also known as sebaceous cyst or wen, is uncommon in childhood. It is a retention tumor in the cutis or subcutaneous tissue, varying in size from a split pea to a hazel nut or occasionally larger. It appears as a round or oval elevation, the overlying skin being usually devoid of hair but otherwise normal. It is attached to the skin but movable on the deeper parts and is firm to the touch. There may be an opening from which rancid smelling, cheesy, whitish material may be expressed or this may be absent and the mass be completely encapsulated. There may be one or several lesions though they are rarely numerous. The favorite locations are the scalp, back and scrotum. Occasionally there is infection with necrosis of the skin and discharge of some of the contents. Atheroma is differentiated from lipoma by the absence of lobulation. Small lesions may be treated by expressing the contents (if the duct is open) followed by swabbing the interior of the sac with phenol or iodin. If there is no opening, or if the lesion is large, it should be excised.

BIBLIOGRAPHY

Diseases of the Sweat-Glands

Stillians, A. W. Control of Localized Hyperidrosis. J. Am. M. Ass., Chicago, 1916, 67: 2015.

Weiss, L. Hyperidrosis Pedum and its Treatment by Baths of Permanganate of Potash. J. Am. M. Ass., Chicago, 1904, 43: 369.

Comedones

Harries, E. H. R. A Note on Some Cases of Grouped Comedones in Infants. Brit. J. Dermat., London, 1911, 23: 5.

Acne Vulgaris

Fox, H. The Roentgen Ray versus Vaccines in the Treatment of Acne. J. Am. M. Ass., Chicago, 1923, 81: 1417.

Kraus, A. Über Akne Neonatorum. Arch. f. Dermat. u. Syph., Wien & Leipzig, 1913, 116: 704.

CHAPTER XV

PIGMENTARY DISEASES

GENERAL CONSIDERATIONS

Under the above title are included abnormalities of pigmentation within the skin and not changes due to the presence of fungi or stains from various chemicals. Pigmentary diseases may be congenital or acquired, localized or diffuse. There may be an increase or decrease of pigment, the former being much more common. The human skin is normally pigmented, though this varies in different races and individuals and in different parts of the body. It is due to minute particles of an organic substance, called melanin, which contains phosphorus but no iron. It is chiefly present in the basal layer of the epidermis, but also in the lower layers of the rete and in the pigment-cells of the cutis. In the diagnosis of pigmentary disorders, it should be noted whether the process is localized or diffuse, primary or secondary and whether or not it is associated with other cutaneous changes. Pigmented lesions do not disappear on pressure.

HYPERPIGMENTATION

Increase in pigmentation may be classed in three groups: (1) those due to an increase in melanin, the most frequent cause; (2) those due to the presence of blood pigment (hemosiderin); (3) those due to the presence of foreign substance, usually of a metallic nature.

Pigmentary anomalies or diseases due to increase in melanin may be either congenital or acquired. The former include pigmented nevi and affections which are possibly nevi in the broad sense, such as urticaria pigmentosa, xeroderma pigmentosum and von Recklinghausen's disease. These are described elsewhere.

The so-called mongolian spots are bluish or mulberry colored patches which appear at birth and occur most frequently in the sacral region. They may be single or multiple, round or oval, well or ill defined and vary in size from a quarter of an inch to one inch in the longest dimension. They cause no subjective symptoms and disappear spontaneously at the end of the third or fourth year. The affection is hereditary and is transmitted according to the mendelian law. Observations on 485 infants were made by Ferreira, who noted mongolian spots in 5 per cent of white infants, 63 per cent of mulattoes and 43 per cent of negroes. A study of mongolian spots was made in Peru by Eyzaguirra, who found them in 80 per cent of native children, though they were rare in infants in whom white blood predominated.

Acquired hyperpigmentation from increase in melanin may be due to physical causes, to certain general diseases and to certain dermatoses. Physical causes include sunlight, ultraviolet rays from artificial sources, Roentgen rays, heat, cold, wind and friction. Hyperpigmentation from these sources is nearly always temporary.

General diseases causing more or less diffuse pigmentation include Addison's disease, diabetes, malaria, exophthalmic goiter, severe anemia, and cachetic states. For some reason the average physician is apt to think first of Addison's disease in cases of generalized or even localized pigmentation. I have seen a great many cases of "suspected" morbus addisonii, but very few actual cases of this rare affection. In one such case which came under my observation the disease was first noticed at the age of fourteen. The patient died about two years later, the diagnosis being confirmed at necropsy. In Addison's disease, the pigmentation is brownish or eventually of a mahogany hue. It may be diffuse or localized in areas which are normally more deeply pigmented. The mucous membrane of all parts of the buccal cavity may be involved. The characteristic pigmentation may accompany or precede other symptoms, such as asthenia, gastric disturbances and lumbar pains. In diabetes there may be a generalized bronzing due to an ochre colored pigment. It does not affect the mucous membranes. Severe malaria may show a dirty grayish or yellowish discoloration, due to pigment produced by the plasmodia.

An increase in melanin may be due to certain diseases affecting the skin or to the ingestion of drugs. Hyperpigmentation is a feature of acanthosis nigricans and melanotic sarcoma and is often present in severe pruritic diseases (from prolonged scratching) and in syphilis, leprosy, lichen planus and scleroderma. Pigmentation following the administration of arsenic and phenolphthalein has been previously discussed (see artificial dermatoses).

The second group of pigmentary affections (due to blood pigment) includes traumatism and the various forms of purpura. These have been previously discussed (see purpura).

The third group of pigmentary disorders is due to foreign substances which have been deposited in the skin. In this class are included metallic salts, such as those of silver, bismuth and lead, which enter the system by ingestion, injection or by absorption. It also includes substances introduced into the skin by tattooing, wounds and the explosion of gunpowder.

Argyria is a permanent pigmentation of slate gray color, due to the deposition of metallic particles of silver in the skin, becoming grayish from exposure to light. The disease is extremely rare at the present day, though it was formerly more common when the drug was used internally for epilepsy, gastric ulcer and genito-urinary affections. Mercury may give rise to stomatitis in which the gums are swollen, red, hemorrhagic and at times ulcerated. The tongue is coated, the breath is fetid and the patient may suffer from thirst, salivation, diarrhea, loosening of the teeth, and in extreme cases from necrosis of the jaw, palate and nasal bones. The blue line on the gums from absorption of lead is well known. Stomatitis from bismuth is less severe than that of lead but causes more pigmentation. It produces bluish-black patches on the lips or cheeks, usually opposite large patches of tartar on the teeth.

Tattoo marks may be removed by excision, electrolysis or chemical methods. Excision is only suitable for linear designs. The best method, according to Shie, is that of Variot which he has modified. The area to be treated is painted with a 50 per cent tannic acid solution and tattooed completely by cambric needles or the electric tattooing needle. The area is then rubbed vigorously with silver nitrate stick until a heavy black deposit of silver tannate is formed and a dry dressing applied. The slough comes away in a little over two weeks, leaving a pinkish area which gradually assumes the normal appearance of the skin.

The presence of grains of powder imbedded in the skin of the face frequently requires treatment. This should be undertaken at the earliest possible moment. If the patient is seen within a day or so after the accident the affected area should be vigorously scrubbed with a stiff brush to the point of producing an abraded surface with moderate bleeding. If necessary this can be done under a general anesthetic. The abraded surface should then be treated for several days with cold compresses of boric acid, followed by a simple zinc ointment or paste. When the patient is not seen for days or weeks after the accident it becomes necessary to remove the powder grains one by one. This should be done under local anesthesia. A drop or two of procain is injected near the lesion and the skin pierced with a sharp-pointed instrument. By using a tiny curet and delicate forceps and scissors the powder grains may be completely removed by a combination of scraping and cutting. Healing takes place readily with remarkably little scarring. In one case I removed 180 grains from the face in the course of a dozen visits. This patient (an adult) was shown before the New York Dermatological Society, the members

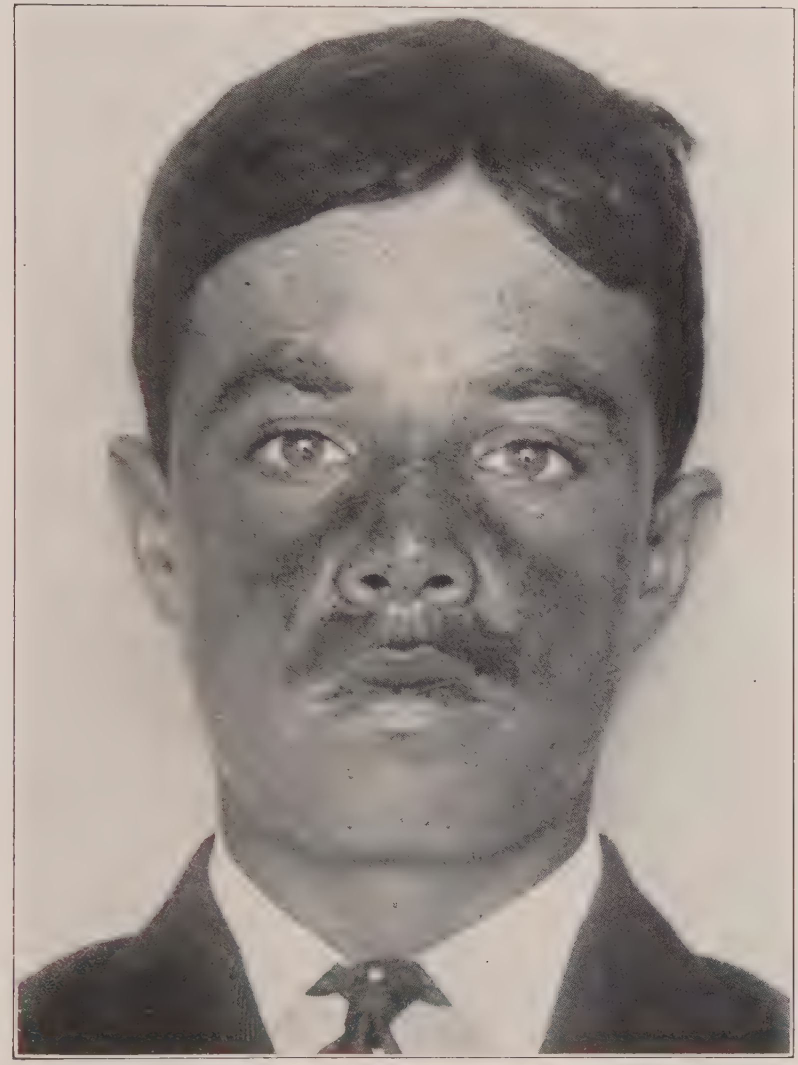

Fig. 93.—Lentigo (Freckles) with Coalescence of Lesions on Lip, Suggesting Appearance of Mustache.

Boy aged fourteen.

present considering the cosmetic result excellent. I have treated less extensive cases in children with equally good results.

Lentigo

Lentigines, or freckles, are common in children, appearing as a rule only after the fourth or fifth year. They are seen in rare instances at birth. They are familiar to all as pinhead to small pea-sized spots which vary in color from a light yellow to a dark brown or even black. Freckles occur most often on the nose and cheeks and backs of the hands, though in extensive cases the upper part of the chest, back and arms may be affected. In severe cases pale lesions may in addition be detected over the remaining parts of the body. Freckles are usually symmetrical in distribution, but occasionally may be unilateral, especially on the face in the distribution of the second division of the fifth nerve. At times the mucous membrane of the lips and mouth is affected. Freckles are seen frequently in children of light or sandy complexion and in those with red hair. They appear after exposure to sunlight and are less conspicuous in the winter. In many cases they disappear almost completely when adult life is reached.

The treatment of freckles is unsatisfactory. They can only be temporarily removed and recur promptly on subsequent exposure to the sun. As they constitute merely a cosmetic defect and as they eventually tend to disappear more or less completely, treatment seems hardly advisable. In cases where this is urgently requested, ointments or lotions which cause desquamation may be used. Weak solutions of bichlorid of mercury and preparations containing green soap, sulphur, resorcin or hydrogen peroxid are recommended (see Formulary).

Chloasma

The term chloasma refers to hyperpigmentation in various-sized patches due to the many causes above mentioned. It is the type of lesion known as liver spot which is chiefly seen on the face of women. Lesions of this type seldom occur in children, though as Brandweiner says they may be seen in severe malarial cachexia and disappear after the cure of the disease. The treatment of chloasma is similar to that of freckles and is equally unsatisfactory.

DEPIGMENTATION

Absence of the normal cutaneous pigment may be either congenital or acquired.

Albinismus

Albinismus refers to congenital lack of pigment occurring either in localized patches or involving the entire surface. The skin is whitish or pinkish in color and does not tan on exposure to the sun. It is otherwise normal. In complete albinos the hair is white, the iris has no pigment and the same may be true of the choroid. Such persons suffer from photophobia and nystagmus and are usually physically and mentally below par.

Complete albinism is rare. In certain tropical regions it is endemic and is possibly due to consanguinity. It is often hereditary and is not uncommon in lower animals.

Localized congenital albinismus could only be confused with the equally rare condition known as nevus anæmicus. The white appearance of albinismus is due to lack of pigment while that of nevus anæmicus is due to congenital lack of blood-vessels or their defective innervation. By rubbing a patch of nevus anæmicus vigorously with ice, no change is noted in the whitish non-vascular area, while the surrounding skin, which is normally supplied with blood-vessels, becomes reddened. Localized albinismus becomes temporarily hyperemic on friction.

Vitiligo

Vitiligo (Latin, *vitium*, a blemish) is an acquired depigmentation which is rather uncommon in children, especially before the tenth year. It may appear before this age, as shown in the accompanying illustration of a two-year-old infant. The terms vitiligo and leukoderma are generally used synonymously, though some prefer to reserve the latter for disappearance of pigment which follows certain lesions of syphilis or psoriasis.

The onset of vitiligo is usually insidious, the disease appearing as round or oval or irregular-shaped patches of a whitish or slightly pinkish color. They are usually, though not always, surrounded by areas of hyperpigmentation, the process appearing as a sort of shifting of pigment. There is no change in the texture of the skin or in sensation or in the function of the sweat or sebaceous glands. Subjective symptoms are entirely absent. Hair covering the affected areas is devoid of pigment. Exposure to the sun has no effect on the whitish areas, but causes a darkening of the hyperpigmented border, thus increasing the disfigurement by greater contrast. The favorite sites are the back of the hands, the face, trunk and genitals, though any part of the skin may be affected. The eruption is occasionally unilateral and suggests a relationship to the distribution of cutaneous nerves, as in a case I reported with a zoster-like arrangement on one side of the trunk. The mucous membranes are never involved. No constitutional symptoms are present and except for the cosmetic disfigurement the disease is entirely harmless.

The course of vitiligo is chronic and capricious. At times the patches may enlarge to a certain size and remain stationary for months or years. In others they may coalesce and involve large areas, affecting almost the entire surface at times. I recall a full-blooded negro at the Harlem Hospital in whom the entire skin had become white with the exception of a single brownish area the size of a silver dollar. In rare instances, more or less retrogression of the process with return of normal pigment has been observed.

Leukoderma acquisitum centrifugum is a curious condition described by Sutton, consisting of small round or oval patches of white skin in the center of which is a small brownish maculopapule. This is thought by recent observers to be a disease *sui generis*. Other similar cases have been recorded.

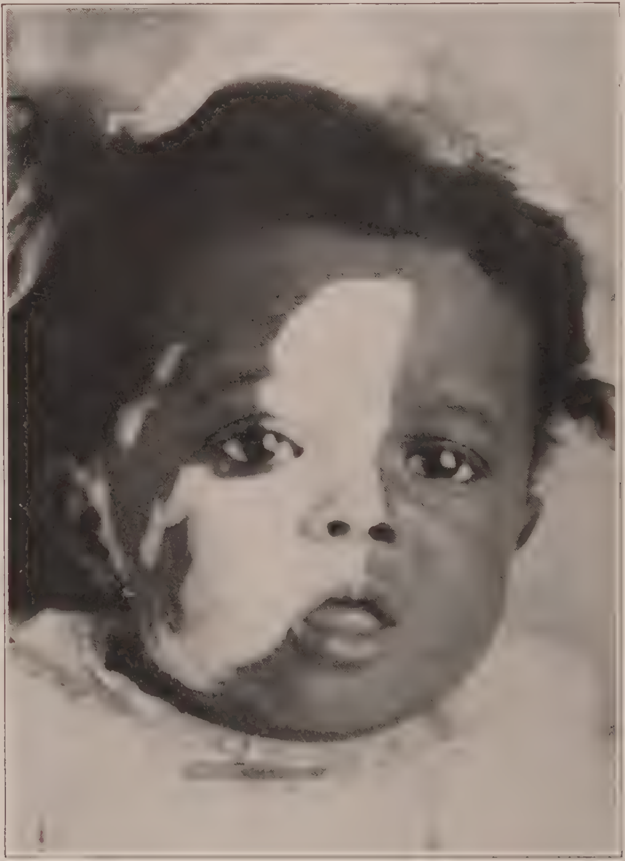

FIG. 94.—VITILIGO.
Full-blooded negro infant of two years.

Etiology and Pathology.—Vitiligo occurs in both sexes and is more frequent in negroes than in whites. Hereditary influence has been noted in a few cases. The cause is unknown. Many believe that it is related to endocrine disturbances. Histologically, the white patches show absence of pigment, while this is increased in the surrounding dark areas.

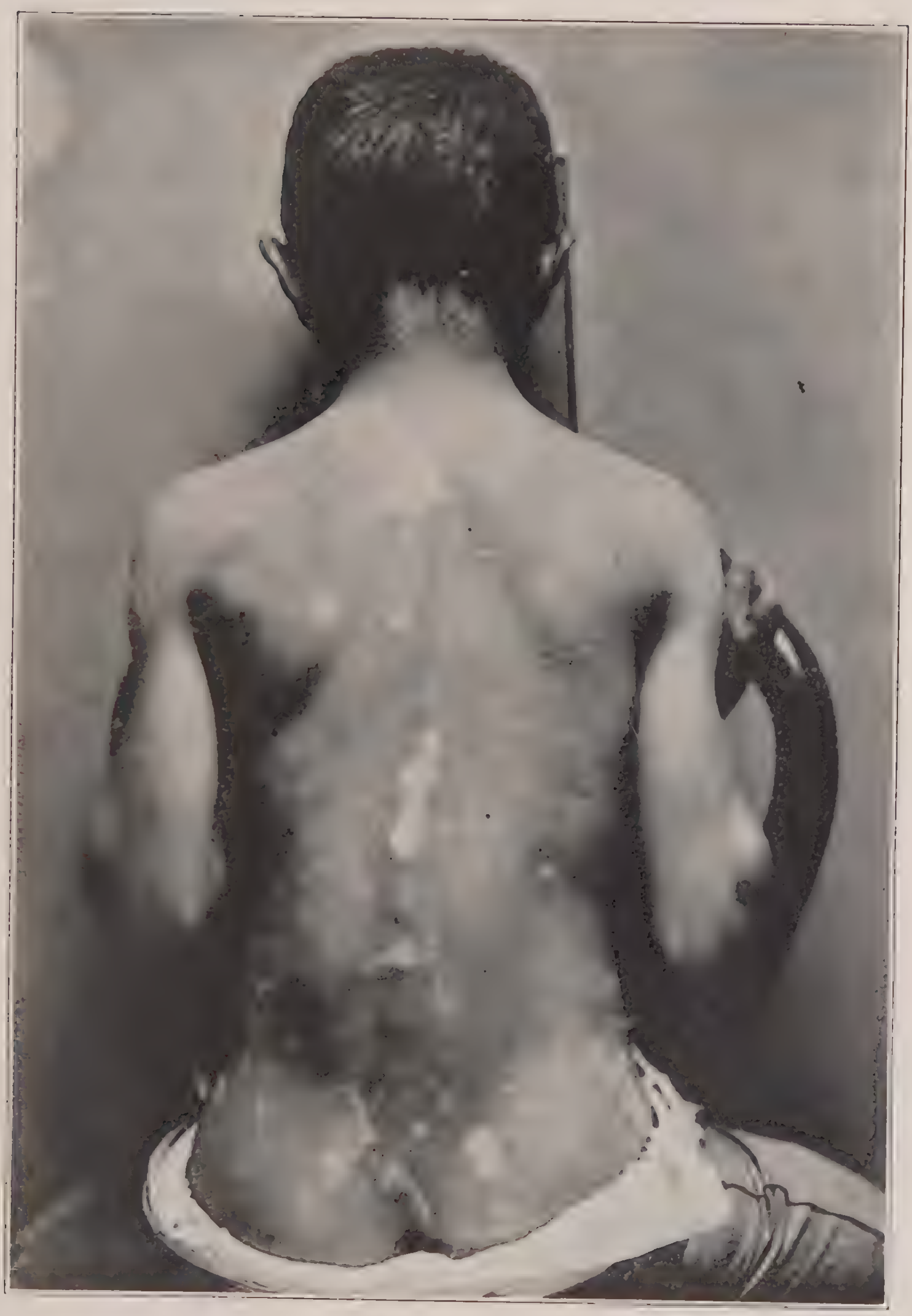

Fig. 95.—Vitiligo.

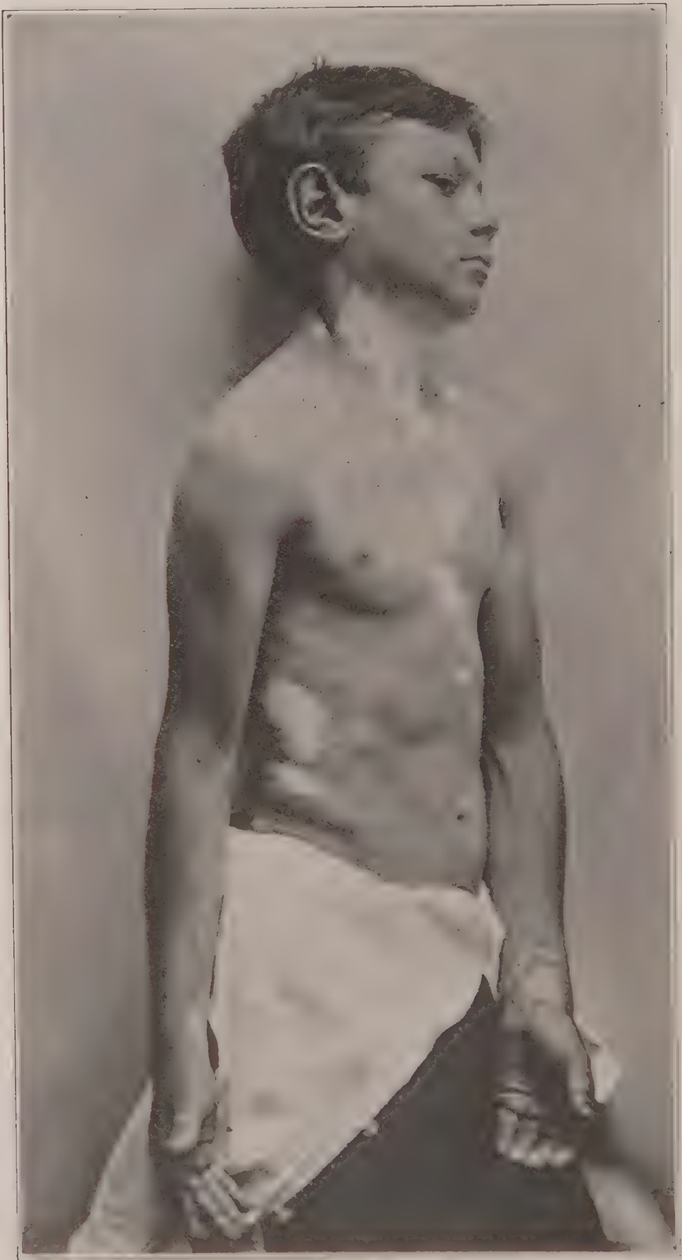

FIG. 96.—VITILIGO.
Note convex border of white patches.

Diagnosis.—Vitiligo is usually recognized without difficulty. In persons of light complexion, the hyperpigmented areas may be mistaken for chloasma and the vitiliginous patches for normal skin. Careful examination shows that the white patches have convex borders, while the darker pigmented areas are concave. Depigmented lesions in leprosy resemble vitiligo closely but the presence of anesthesia and other characteristic changes serve to prevent confusion. Morphea and atrophic lichen planus are differentiated by changes in texture of the skin. The whitish areas which are left at times after the disappearance of psoriatic patches are recognized by the history and lack of surrounding hyperpigmentation. The tropical disease, pinta, which I have recently studied in South

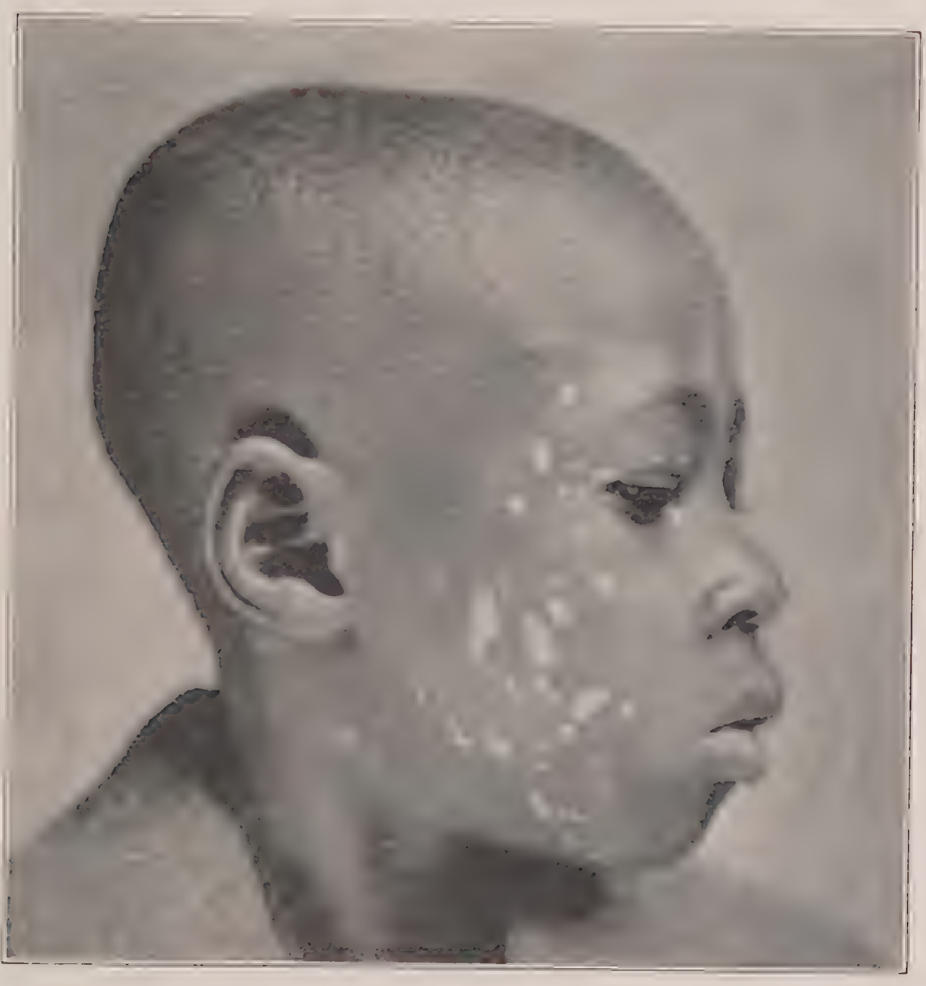

Fig. 97.—Depigmentation, Probably Temporary, Following Impetigo.

America, may superficially resemble vitiligo. The white patches in pinta are, however, associated with blue, black, yellow or other pigmentation and constitute the terminal stages of the process.

Treatment.—Nothing can be done to restore the pigment permanently in vitiligo. By prolonged use of ultraviolet light the patches may be temporarily pigmented. After the use of the carbon arc lamp, according to With, it may remain as long as fourteen months. As a rule the result of treatment by mercury vapor quartz lamps is most unsatisfactory. The patches may be stained by walnut juice, ichthyol or chrysarobin though this is a temporary expedient which is hardly worth while in the case of children.

Prognosis.—The disease is harmless but incurable.

BIBLIOGRAPHY

Mongolian Spots

Eyzaguirra, R. La Tache mongolique au Perou. Arch. de méd. d. enf., Paris, 1922, 25: 19.

Ferreira, C. La Tache bleue mongolique a Sao Paulo (Bresil). Arch. d. méd. d. enf., Paris, 1922, 25: 23.

Addison's Disease

Fox, H. Case report. J. Cutan. Dis., New York, 1913, 31:780.

Tattooing

Shie, M. D. A Study of Tattooing and Methods of its Removal. J. Am. M. Ass., Chicago, 1928, 90: 4.

Powder Grains

Fox, H. Case report. Arch. Dermat. & Syph., Chicago, 1920, 2: 123.

Chloasma

Brandweiner, A. Die Hautkrankheiten des Kindesalters. Leipzig & Wien, Franz Deuticke, 1910, p. 263.

Vitiligo

With, C. Studies on the Effect of Light on Vitiligo. Brit. J. Dermat., London, 1920, 32: 145.

CHAPTER XVI

VASCULAR DISEASES

TELANGIECTASIA

Telangiectasia is usually a dilatation of preëxisting capillaries, though sometimes it may be due to the formation of new vessels. It may be either congenital or acquired. In the former case it constitutes a capillary nevus and is seen often in a stellate form known as nevus araneus (see nevi). Telangiectases occur as wavy red lines which disappear temporarily on pressure. They may be few in number or numerous and form a complicated network with a mottled appearance. Crocker relates the case of a girl of seven with profuse telangiectases which were "all over the face below the forehead and on the back of the forearms and hands." Fresh lesions were still appearing at the age of fourteen. He quotes a second case in a girl of ten in which the lesions chiefly occupied the region between horizontal lines drawn across the eyebrows and across the tip of the nose. There were also signs of new ones on the lower part of the face and forearms.

Telangiectases occur in circulatory disturbances, especially on the cheeks, in children with cyanotic hands and feet and a tendency to chilblain. As a result of poor circulation, they are also seen on the abdomen, outer surface of the thighs and in other regions. They may be present in acquired syphilis, as described by Stokes, and in exophthalmic goiter. They constitute primary and essential changes in certain skin diseases, such as xeroderma pigmentosum, radiodermatitis, angiokeratoma, angioma serpiginosum and purpura annularis telangiectodes (Majocchi's disease). All except the last named are described elsewhere. Majocchi's disease is rare and is seen chiefly in adults though it occurs at times in children. It is symmetrical and as a rule affects the lower extremities. The eruption begins as reddish telangiectatic puncta which enlarge peripherally and form small circles. This is later followed by pigmentation and occasionally by slight atrophy and alopecia of the affected parts. Subjective symptoms are absent. The disease disappears spontaneously at the end of a few months. Other skin diseases which may be associated with telangiectasia include adenoma sebaceum, morphea, lupus vulgaris and lupus erythematosus. Fearnsides described five cases of telangiectases in children associated with wasting and protracted diarrhea, erythema and edema. In two cases purpura was also present. The treatment of telengiectases is described in the chapter on nevi (see nevus araneus).

Hereditary Hemorrhagic Telangiectasia

The above named was suggested by Hanes for the disease first described, in 1896, by Rendu. It has been supposed to be a rare affection. Goldstein, in 1921, finding reports of only thirty families in the literature to which he added an account of another family of eleven members. Williams, in a recent report, states his belief that the disease is "exceedingly common" as he has observed four cases (in different families) within the space of four weeks.

Symptoms.—The disease consists, as its name would imply, of an inherited telangiectasia, which results in hemorrhage. It begins in childhood and lasts throughout life. The telangiectases are present in both mucous membranes and skin, the special sites being the nasal and buccal mucosa, the face, ears, lips and at times the arms, hands or other parts. They may appear as a capillary network or as "spider nevi," the latter being more characteristic. Their appearance may suggest that of purpura for which they have been mistaken.

Bleeding is noticed early, as a rule, and often comes from the nose, though it may take place in the mucous membrane of the mouth, tongue or lips. There may also be bleeding from the affected areas of the skin, following traumatism. The hemorrhage may be severe and cause serious anemia, and has even been known to cause death. The patients do not give a history of bleeding easily after ordinary cuts or small wounds. The clotting time is normal and the blood-platelets are not materially reduced. The tendency to bleeding may either increase or decrease in later years.

Etiology.—One of the features on which the diagnosis is made is the hereditary tendency which is transmitted through both sexes. Several brothers and sisters are often affected. The relationship to hemophilia is not settled. The disease apparently represents an hereditary abnormality of unknown origin.

Treatment.—Nothing can be done to check the process, as its cause is unknown. Some of the individual lesions may be treated by electrolysis or other means (see nevus araneus).

Prognosis.—The disease is incurable and may occasionally cause severe hemorrhage and even death.

ANGIOKERATOMA

Symptoms.—Angiokeratoma is a rare disease which usually makes its first appearance about the age of puberty. As suggested by the name, given by Mibelli, it consists of vascular lesions upon which hyperkeratoses develop. The eruption appears usually on the basis of chilblain and is seen most frequently on the back of the fingers and toes, less often on the scrotum or other locations. The first changes are reddish telangiectases, the shade of red depending on the congestion of the parts. On diascopic pressure the color disappears. Later, hyperkeratoses or warty elevations develop on the vascular areas. The lesions are of pinhead to pea size, are usually discrete and closely aggregated, but may coalesce to form larger areas. They cause no appreciable subjective symptoms and are often incidentally discovered by the physician. They tend to remain indefinitely.

Etiology and Pathology.—Angiokeratoma is closely related to chilblain with which it is usually associated at the outset. More than one member of a family may be affected, as in the cases of Pringle (four persons). It is considered by some authorities to be a tuberculid on account of the coexistence at times of manifestations of tuberculosis. Histologically there are cavernous spaces in the papillary region of the cutis and an accompanying hyperkeratosis.

Diagnosis.—The disease is differentiated from ordinary warts by the accompanying vascularity.

Treatment.—The lesions are easily removed by the actual cautery, electrolysis or other destructive methods.

ANGIOMA SERPIGINOSUM

Angioma serpiginosum is an extremely rare disease which often begins in childhood and at times in infancy. It was first described by Jonathan Hutchinson as a "peculiar form of serpiginous and infective nevoid disease."

Symptoms.—The onset is insidious and the development gradual. The earliest lesions are diffuse, reddish macules or tiny spots which have been likened to grains of cayenne papper. They spread gradually by peripheral extension, clearing in the center and forming small delicate rings which are the most frequent and characteristic lesions. The disease may begin as an ordinary vascular nevus though more often it originates on normal skin. It may appear on any part of the body and is at times disseminated over the greater part of the cutaneous surface. In addition to the cayenne pepper spots and vascular rings, Wise found diffuse uniform redness, meshworks of irregularly curved and crooked lines, small vascular papules, pigmented lesions (chiefly on the legs) and whitish atrophic spots. Subjective symptoms are absent or trifling in character. The general health is not affected and there are no discernible abnormalities in the blood or viscera. There is no tendency to hemorrhage in the affected areas. The course of the disease is chronic and slowly progressive. It may attain a certain development and remain stationary and has occasionally been known to disappear spontaneously.

Etiology and Pathology.—In the cases thus far reported the disease had begun, as a rule, before the tenth year and in four cases was first noted in infancy. It is more common in the female sex and its cause is unknown. According to Pollitzer, the disease is a low grade inflammation affecting the capillary areas of the papillary and subpapillary regions with secondary changes in the epidermis.

Diagnosis.—This is evident in well-developed cases, though at times it may be confused with Majocchi's disease or the progressive pigmentary affection of Schamberg. It differs from Majocchi's disease in never showing any purpuric lesions and in appearing as a rule at a much earlier age. Schamberg's disease is seen chiefly on the lower extremities and does not present the varied clinical picture of angioma serpiginosum.

Treatment.—This is generally considered to have no effect whatever on the disease. In Wise's cases, however, an excellent result was obtained by the use of the mercury vapor quartz lamp, the eruption clearing up almost entirely and remaining so for two years after which the patient disappeared from observation. I have not seen this rare disease in childhood, but have had three cases in adults, two of them being included in Wise's report. In my third—a very extensive case—I used ultraviolet light following Wise's suggestion and obtained an astonishing improvement. Whether this will prove temporary or permanent I am unable to say.

Prognosis.—This is good so far as any interference with health is concerned. The disease is nearly always slowly progressive and permanent.

PROGRESSIVE PIGMENTARY DERMATOSIS

(*Schamberg's Disease*)

Under the title of "A Peculiar Progressive Pigmentary Disease of the Skin" Schamberg, in 1900, described a rare condition or one which at least is seldom reported. Kingery recorded the first case in this country and another has lately been reported by McCafferty. It occurs at all ages.

Symptoms.—When first seen by the physician, the eruption consists of pigmented areas on the legs and in some cases also on the thighs or forearms. These are sharply defined and of a yellowish-brown color. In the neighborhood of the patches are seen pin point to pin head puncta suggesting telangiectases, which disappear on pressure and leave faint yellow stains. These punctate lesions have the appearance of cayenne pepper grains, though they are somewhat darker. The disease apparently begins as punctate spots which later coalesce. There is no tendency to ring formation, the skin is smooth and soft and subjective symptoms are absent. The course of the disease is gradual and progressive and may involve the greater surface of the legs. It lasts months or years and gradually undergoes more or less involution, leaving a diffuse, slight, yellowish-brown stain.

Etiology.—The disease has only been seen in the male sex. Its cause is unknown. Histologically there is evidence of a subacute inflammation in the upper cutis with the presence of a multicellular infiltrate. Kingery has lately shown that the pigment present in his case was an iron derivative, suggesting an origin from the blood stream.

Diagnosis.—That it is a different process from ordinary hemostatic pigmentation is shown by its appearance in children on the arms as well as legs and in the absence of varices. It differs from angioma serpiginosum and Majocchi's disease in its absence of annular lesions and in the histologic changes. Majocchi's disease is seen chiefly in adults and runs a comparatively short and self-limited course.

Treatment.—This has proved to be of little value.

RAYNAUD'S DISEASE

Symmetrical gangrene, known as Raynaud's disease, is rare in children, though cases have been recorded by Gaspardi, Behrend and Beck, in which it affected infants and young children. It was also observed by Durante in two newborn infants suffering from syphilis.

Symptoms.—The disease occurs in paroxysmal attacks, the affected parts becoming blanched and cold to the touch like those of a cadaver. There is usually moderate pain and a tingling or prickling sensation. This stage of ischemia (syncope) may last a few minutes to a few hours and is followed by congestion (asphyxia) in which the parts become deeply cyanotic. The color returns gradually to normal or the skin may be temporarily reddened. During the cyanotic stage there may be more or less throbbing pain or paresthesia. The fingers are affected most often and not infrequently the toes as well. The process is usually symmetrical. After repeated attacks the congestion becomes permanent and may eventually be followed by the stage of gangrene. This is usually of the dry type. As a rule it affects small areas of tissue but occasionally an entire digit or portions of the ear are lost. After a long period the finger tips tend to become pointed and the nails show dystrophic changes or may be shed.

Etiology.—Raynaud's disease occurs in children who are in poor health. It may follow severe illness, such as typhoid fever or the exanthemata. It is seen in females more often than in males, and at times several members of a family are affected. The disease is a vasomotor disturbance in which paroxysms are precipitated by cold. The direct cause is unknown.

Diagnosis.—Raynaud's disease is differentiated from the progressive type of scleroderma by the absence of the tight or "hidebound" skin of the latter affection. As a matter of fact, the two diseases not infrequently coexist, or at least the phenomena of local syncope and asphyxia are commonly seen in the early stage of scleroderma affecting the fingers. The clinical picture of Raynaud's disease may be due to peripheral syphilitic arthritis, cases of which I have recorded (in adults). In this process there is partial occlusion of the radial artery, lessening the force of the pulse during all stages of the process and not merely during that of local syncope as in Raynaud's disease. Frost-bite is differentiated by the history and lack of paroxysmal attacks.

Treatment.—In addition to proper diet and tonics to improve the general health, about all that can be done is to avoid exposure to cold. Residence in a warm climate is advisable for severe cases. Massage is of little or no help and galvanization over the spine, as suggested by Raynaud, has since proved to be useless.

Prognosis.—This is unfavorable as the disease is chronic and refractory to treatment.

BIBLIOGRAPHY

Telangiectasia

Crocker, H. R. Diseases of the Skin, Philadelphia, P. Blakiston's Sons & Co., 3rd. Ed., 1903, p. 967.

Fearnsides, E. G. Telangiectases in Children in Association with Wasting and Protracted Diarrhœa. Brit. J. Dermat., London, 1912, 24: 35.

Stokes, J. H. Generalized Telangiectasia in Association with Syphilis, with the Pathological Picture of Peripheral Vascular Sclerosis. Am. J. M. Sc. Philadelphia, 1915, 24: 669.

Hereditary Hemorrhagic Telangiectasia

Goldstein, H. I. Hereditary Hemorrhagic Telangiectasia with Recurring (Familial) Hereditary Epistaxis. Arch. Int. Med., Chicago, 1921, 27: 102.

Williams, C. M. Hereditary Hemorrhagic Telangiectasia. J. Cutan. Dis., New York, 1926, 14: 1.

Angiokeratoma

Pringle, J. J. On Angiokeratoma. Brit. J. Dermat., London, 1891, 3: 237.

Angioma Serpiginosum

Fox, H. Case report. Arch. Dermat. & Syph., Chicago, 1920, 1: 461.
Wise, F. Angioma Serpiginosum (Infective Angioma of Hutchinson) with Report of a Very Extensive Case. J. Cutan. Dis., Chicago, 1913, 31: 725.

Progressive Pigmentary Dermatosis

Kingery, L. B. Schamberg's Progressive Pigmentary Dermatosis. Report of a Case with Histologic Study. J. Cutan. Dis., Chicago, 1918, 36: 166.
McCafferty, L. K. Schamberg's Peculiar Progressive Pigmentary Disease of the Skin. Arch. Dermat. & Syph., Chicago, 1926, 14: 53.
Schamberg, J. F. A Peculiar Progressive Pigmentary Disease of the Skin. Brit. J. Dermat., London, 1901, 13: 1.

Raynaud's Disease

Beck, C. Some New Points in Regard to Raynaud's Disease. Am. J. M. Sc., Philadelphia, 1901, 122: 536.
Berend, M. Symmetricus Gangrana (Raynaud-fele kor) esete gyermeknel. GyermekgyóPgyászat, Budapest, 1897, 7.
Durante, D. Observation de gangrene des orteils chez un enfant. Echo méd. Neuchat. 1859, 3: 412.
Fox, H. Notes on Some Cases of Symmetrical Gangrene. Relation to Arteritis. Med. Rev. of Rev., New York, 1907, 98: 895.
Gaspardi, E. Su di un caso de gangrena-simmetrica locale delle estremita. Gazz. d. cap. Milano, 1902, 23: 1566.

CHAPTER XVII

DYSTROPHIES

SCLERODERMA

Scleroderma may be either generalized or localized, the latter being known as morphea. These types differ materially in appearance and course to such an extent that some consider them entirely different affections. Both may, however, occur simultaneously and both are rare in childhood, especially the generalized forms.

Generalized Scleroderma

This may be divided into the edematous and progressive types. The *edematous* type may have an acute or more often subacute onset and appear in apparently healthy children or follow an infectious disease, traumatism or exposure to cold. There may be prodromal symptoms, such as chilliness, malaise, slight itching or various paresthesiæ. The disease affects the face, trunk and upper part of the extremities, but varies greatly in its extent. In general, the upper half of the body is more often affected than the lower, and in some cases the entire surface is involved. The skin feels stiff and is the seat of a peculiar hard edema which does not pit on pressure. It is smooth, shiny, stretched and cannot be pinched between the fingers and is commonly spoken of as being "hidebound." There are usually no subjective symptoms except slight itching at times and in extensive cases an uncomfortable sensation of stiffness. There is never any pain or appreciable change in sensation in the skin. At times there may be lessened sweating of the affected parts. In children the disease may disappear entirely or continue to the atrophic stage (described below) with a fatal termination from inanition or intercurrent disease.

The *progressive* type of generalized scleroderma begins in certain areas and spreads very slowly until it finally involves the entire surface of the body. It is far more chronic than the preceding type. It begins, as a rule, on the fingers and hands and in rare cases on the face and gradually increases in extent, being always symmetrical. At the outset, the hands are likely to exhibit the phenomena of Raynaud's disease (local syncope and asphyxia). As the disease progresses the hidebound changes in the skin prove the condition to be different. The skin is tightly stretched, the fingers stiff and often pointed and eventually more or less ankylosed. This is due to the sclerodermatous changes and not to the disease of the joints.

From impaired nutrition, superficial ulceration occurs on the fingers and knuckles. When the face becomes involved, it assumes a corpse-like expression, the lips being thin, the nose and cheeks sunken and the eyelids partially immobile. As the disease, after months or years, becomes generalized, there is atrophy not only of subcutaneous tissue and fat but also of muscle and bones. At times there are calcareous changes in the skin and in the unique case of Pollitzer the formation of bone was noted. The mucous membrane of the mouth and vagina may be involved. Pigmentation in macular, diffuse or reticulated form is common, and at times patches of depigmentation are seen. The nails may show dystrophic changes or be shed and there may be partial alopecia. Involvement of the chest may cause embarrassment in breathing. The general health is impaired, the patients suffer from cold and eventually die of inanition or intercurrent disease (pneumonia, nephritis, tuberculosis).

In regard to the occurrence of scleroderma in infants there appears to be considerable difference of opinion. Stelwagon, in his textbook, states that the generalized type of scleroderma does not occur in infants, but adds that the youngest case on record was one of thirteen months. Lieberthal takes the opposite view and thinks that quite a number of cases recorded as sclerema were clearly cases of true scleroderma. His opinion is based solely on clinical appearance. He presented a young infant before the Chicago Dermatological Society as scleroderma, the other members present dissenting in this diagnosis. "It seems to be proved," Gray states, "that infantile scleroderma does exist, but it is also certain that many cases of sclerema have been described as scleroderma." The difficulty lies in the fact that the diagnosis has been so rarely confirmed by histological examination. Such cases, however, have been recorded by Kneschke, Löwenberg and by Weidman. In the case recorded by Cockayne, although no biopsy was performed, the diagnosis of congenital scleroderma and sclerodactylia appeared fairly conclusive. The opinion is held by some that, because the eruption occurs in a healthy infant and later disappears completely, it must be scleroderma and not sclerema, as the latter disease is thought to be usually fatal. This is not true, as I have recently learned from personal observation (see sclerema).

In children, the disease is essentially the same as in adults, except that the course is apt to be more acute and the trophic stage not so well developed. It is much less frequent and is less serious in children and may clear up completely, as in the case of a nine-year-old girl reported by Goodman.

MORPHEA

Morphea or localized scleroderma is a much more common disease both of children and adults than the generalized form. It is a harmless though extremely chronic affection and causes no appreciable inconvenience. It begins as hyperemic spots which soon become yellowish and later ivory-white in color. There is also a characteristic pinkish or lilac border, due to dilated blood-vessels. The affected areas may be single or multiple, of irregular size and shape, and as a rule not larger than the palm. They are usually on a level with the surface, though they may be slightly depressed and look as if they had been set in the skin. The favorite locations are the face, chest and lower extremities, though any region may be affected. At times the lesions appear as pinhead to pea-sized or slightly larger spots, known as morphea guttata. The disease may also assume a linear or bandlike formation on the forehead or extend down the entire length of the limbs. In rare instances it may be unilateral and at times is associated with hemiatrophy of the face, as in the cases recently reported by Osborne (boy of nine and girl of seven years). Morphea is seen at times with generalized scleroderma.

The course of morphea is protracted, the disease persisting for years. It is said to disappear spontaneously in the majority of cases, and after involution may leave slight atrophy.

Etiology and Pathology.—Scleroderma may be seen at any age of life, including infancy. Children are less often affected than adults. The disease occurs in females two or three times as often as in males. It has been known to follow exposure to cold, wet, sunlight, traumatism and various infectious diseases. Changes in the thyroid gland have been noted often enough to make it seem possible that endocrine disturbances may in some way be causative. Such changes may include both increase and decrease in size of, or absence of, the thyroid gland. The occurrence of morphea in bands, especially on one side of the body, suggests an involvement of the nervous system. Arsenic has been found by Ayres in the urine in a series of cases. We are still in the dark regarding the cause and nature of the disease. Histologically, there is hyperplasia of connective tissue at the outset, with perivascular lymphoid infiltration and later atrophy of connective-tissue and adnexa of the skin.

Diagnosis.—This is not difficult in well marked cases, the rigid, hard and hidebound condition of the skin being characteristic. In early cases of the progressive type, Raynaud's disease is suggested. The subsequent changes in the skin prevent confusion. The only real difficulty is the differentiation of scleroderma in infants from sclerema and edema neonatorum. In my opinion, scleroderma is extremely rare in infants and can only be positively differentiated from sclerema by histologic examination. In edema neonatorum, at the outset at least, there is pitting on pressure.

Treatment.—Little can be done for scleroderma, as we are ignorant of the cause. For the generalized severe types, change to a warm equable climate is often recommended, in view of the fact that the patients suffer from cold. A generous diet and cod-liver oil are also indicated. In any case where thyroid dysfunction is proven or even suspected, it is proper to try thyroid medication. It should be given in small doses and continued for long periods. Personally, I have never seen results of much value from this method. Massage and hydrotherapy (hot or Turkish baths) seem to produce some improvement.

Prognosis.—This is more favorable in children than in adults, especially in the edematous type which may disappear completely. In the progressive type the prognosis is unfavorable, the patient dying eventually from inanition. Morphea is a harmless affection and disappears after a protracted course.

SCLEREMA NEONATORUM

Sclerema neonatorum is a rare disease of infancy, first described, in 1784, by Underwood. With this condition edema neonatorum was for many years confused, until Parrot, in 1877, made a clear distinction between them. While the differentiation of the two diseases may often be difficult, they appear to be entirely distinct affections. Sclerema and edema of the newborn have much in common. Both occur at birth or shortly after in poorly nourished and often premature infants and run a rapid and usually fatal course.

Symptoms.—Sclerema neonatorum may appear at birth or a day or so later. It may involve the lower extremities at first and extend rapidly upward until it is more or less universal, always sparing the palms and soles. The skin is cold, of a waxy hue, is hidebound as in scleroderma and cannot be pinched between the fingers. There is general immobility of the joints, especially the jaws, deglutition and respiration are embarrassed, the pulse becomes slow and weak, the temperature, as a rule, is subnormal and death usually ensues within ten days. In a minority of cases, the disease does not appear until a few weeks after birth, is restricted in area, the constitutional symptoms are mild or absent and recovery follows.

A case of this kind has recently come under my observation. The patient was a well-nourished infant, six weeks old, whom I first saw in private practice, on June 25, 1928. The eruption first appeared when she was two and a half weeks old. It involved the greater part of the back, the lower part of the abdomen, vulva, buttocks, thighs and cheeks. The skin was fairly normal in appearance, except on the back where there was a bluish tint. In the affected areas there were diffuse and in some places somewhat circumscribed, hard, painless infiltrations upon which the skin was typically hidebound. Fortunately I was able to excise a small piece of tissue from the back for histologic examination which proved the case to be one of sclerema. The diagnosis was made by Professor Alexander Fraser, the sections showing fat necrosis and foreign body giant-cells and no changes in the connective tissue suggesting scleroderma. The baby continued to gain in weight, the lesions gradually softened and three months after the first visit the eruption had entirely disappeared.

Etiology and Pathology.—Most of the babies with sclerema are prematurely born or are at least feeble and undernourished. The majority are institutional cases, often foundlings. The essential cause of the disease is unknown. It has been found that the fatty tissue of infants has a high melting point due to decrease in oleic acid, which may account for its becoming solid when the temperature is subnormal. This would not apply to cases which have been reported by Myers, Harris, Gray and others, with normal or elevated temperature. Harrison (quoted by Gray) found a decrease in the oleic acid content, while Smith, on the contrary, found a greater amount of oleic acid in the affected than in the normal tissues. He considered the disease to be due to fat necrosis and not to absence of oleic acid. Parrot thought the process due to desiccation of tissue following diarrhea, associated with atrophy of fat. It would therefore seem that the pathology of this condition is not settled.

Diagnosis.—The most important differential point between this disease and edema of the newborn is that there is no pitting on pressure as in the latter condition. Sclerema, furthermore, is apt to be more extensive and the immobility of joints, especially of the jaws, is very suggestive.

Treatment.—The indications for treatment include warmth and nourishment. Warmth is supplied by an incubator, warm baths and by encasing the body in wool. Nourishment and stimulants may be given by rectum or through a nasal tube. Massage with warm hands has been suggested, and mercurial inunctions have been followed by cures, according to Darier.

Prognosis.—With the exception of cases in which the disease is of limited extent, the outlook for recovery is unfavorable.

EDEMA NEONATORUM

Symptoms.—Edema of the newborn, like sclerema, is rare. It appears a day or two after birth, the extremities being first affected. The disease travels upward, involving chiefly the lower half of the body, especially the genitals, and rarely becomes universal. The color of the affected areas is dull reddish or bluish, and upon pressure there is characteristic pitting. The tissues tend to become more firm and tense and the pitting less noticeable, when the differentiation from sclerema becomes difficult. The general condition grows rapidly worse, the child becomes drowsy and apathetic, the temperature is subnormal and death ensues as a rule within a few days, from exhaustion or intercurrent disease. As in sclerema, the process may involve a limited area and be followed by recovery. The great majority of cases terminate fatally.

Etiology and Pathology.—The disease occurs chiefly in premature infants or those suffering from malnutrition. Many causes have been suggested, such as cardiac, renal and pulmonary affections, syphilis and exposure to cold. Jarisch (quoted by Stelwagon) thinks that the diversity of clinical and postmortem findings "point to the condition being a symptom or a part of other grave diseases, rather than an independent malady."

The differential diagnosis is considered in discussing sclerema and the treatment for both conditions is the same.

DERMATITIS EXFOLIATIVA NEONATORUM

(*Ritter's Disease*)

Under the above title, Ritter von Rittershain, in 1878, reported a series of 297 cases of an exfoliating and frequently fatal disease in the newborn. His observations were based on cases seen in a foundling asylum for a period of ten years. According to Guy, who has recently reviewed the subject, the disease is rarer than the rather numerous case reports would indicate. In some of the latter, he suggested that errors of diagnosis had been made.

Symptoms.—The onset is sudden and occurs between the end of the first and fifth weeks. In typical cases the eruption appears as an erythema of the face, especially about the mouth, and rapidly spreads over the entire surface. The redness suggests the appearance of erysipelas, which led Ritter to report his first case as dermatitis erysipelatosa. The skin becomes edematous and may exfoliate in large flakes, exposing the raw surface of the rete, as in a second degree burn. The horny layer may also be removed by friction, as in pemphigus. The mucous membranes, hair and nails may be involved, the latter being shed at times with epithelial casts of the hands. The lips are thickened and there are often painful fissures of the mouth which interfere with nursing. Vesicles and bullæ may appear, but are not a characteristic feature of the disease as described by Ritter.

Constitutional symptoms are usually absent, the temperature being normal or subnormal unless secondary infection is present. In favorable cases, improvement is noticed on the fourth or fifth day and complete recovery takes place within ten days or more in milder cases. Complications include abscess, gangrene, erysipelas, intestinal catarrh, pneumonia and sepsis. Death occurs in 50 per cent of the cases, due to exhaustion or complications, and even in the mild ones it may result from sepsis through the umbilicus.

Etiology.—Many different opinions have been expressed regarding the causation. Kaposi and others thought it was related to epidermolysis bullosa, Luthlen considered it of toxic and Bender of trophic or vascular origin. Carlton, in a review of the subject in 1907, found that approximately half of the cases were preceded by eczema, intestinal irritation or umbilical infection. Various organisms have been isolated,, particularly staphylococcus, from bullous lesions and occasionally from the blood. Staphylococcus was found by Hazen, a short chain of streptococcus by Fisher and Wittenberg and *Bacillus pyocyaneus* by Guy.

In the opinion of many authorities the disease is a malignant type of pemphigus neonatorum. Cole and Ruh hold this opinion and are able to cite cases changing from Ritter's disease into pemphigus neonatorum and vice versa. They consider both the causative organisms and the histologic structure to be similar and state that epidemics of varying severity may result from both diseases. Those who do not accept the view that the two affections are essentially the same claim that Ritter's disease has not been definitely proved to be communicable.

Diagnosis.—At the outset, erysipelas is simulated but is excluded in the majority of the cases by absence of a rise of temperature. Later, the only disease in which confusion may arise is pemphigus neonatorum. When bullæ are present and numerous, this may well be difficult or impossible.

Treatment.—Nutrition and body warmth must be maintained. Locally, soothing ointments or powders are indicated.

Prognosis.—This is always serious, as half of the patients die. It is more favorable in the less extensive cases, though there is always danger of sepsis or other complications.

HEREDITARY EDEMA OF THE LEGS

(*Milroy's Disease*)

This condition was first described by Meigs, in 1899, as dystrophie édemateuse héréditaire. It may appear shortly after birth or be delayed until puberty. It consists of a simple edema, symmetrically affecting the lower extremities. It may be confined to the ankles or the legs (as in most cases) or involve the thighs in addition. It is hereditary and familial, a striking family group of twenty-two cases in six generations having been recorded by Milroy, after whom the affection is often called. Hope and French also reported a series of thirteen cases in five generations. The affection is not apparently due to any lymphatic or other local obstruction. Its etiology is unknown. The disease persists through life without causing any serious inconvenience.

KERATOSIS FOLLICULARIS

Keratosis follicularis, known as Darier's disease, is a rare affection which often begins in childhood.

Symptoms.—The onset is gradual and consists of an eruption of papules which at first resemble keratosis pilaris. The papules are pinhead sized or larger, firm, round and rough to the touch. They enlarge later and become covered with greasy-looking, adherent scales. On removal of the scales, minute funnel-shaped depressions are seen. The papules are discrete at first and are situated mainly at the opening of the pilosebaceous follicles. They show a gradual tendency to coalesce and form rough papillomatous elevations which are most marked in the axillæ and especially the genitocrural regions. In these situations, they are tumor-like and, from maceration and secondary infection, may give rise to superficial ulceration and a seropurulent discharge of foul odor. The color of the papules at the outset is grayish or reddish or similar to that of normal skin. Later it becomes dark yellowish-brown.

The eruption begins on the face or genitocrural region and progresses slowly, as a rule, but always in a symmetrical manner. Eventually, it may be generalized and profuse. The favorite sites are those in which the sebaceous glands are most numerous. They include the scalp, temples, forehead (near the hair line), fold between the nose and cheeks, sternal, interscapular, axillary and genitocrural regions and flexor surface of the larger joints. The palmar and plantar surfaces may show punctate keratoses and the nails may be dystrophic. In spite of frequent severe scaling of the scalp, there is no loss of hair. Occasionally there is a slight involvement of the mucous membranes. Subjective symptoms are absent, except in the severe vegetating lesions which may cause soreness. The general health is not affected by the disease.

The course is chronic, and after attaining a certain development the process may remain stationary for years. There is never any tendency to spontaneous disappearance, the disease being practically incurable.

Etiology.—According to Darier, the disease appears in one-half of the cases between the ages of eight and sixteen, but has been observed in younger children. Borghoff has recently reported a case of a young child in whom the disease first appeared at the age of eighteen months. Males are affected more often than females. In some cases the disease is apparently hereditary and familial, five cases in three generations being reported by Trimble. The cause is unknown. It has been thought by some to be a defect of congenital origin. There is nothing to suggest contagiousness.

The disease was erroneously described by Darier at first as an infectious process, certain characteristic "round bodies" being considered by him to be psorosperms. He later recognized that these were not parasites, but were merely degenerate cells formed in an abnormal process of cornification. These cells have no known significance, but are absolutely diagnostic of the disease. The process is considered to be a dyskeratosis and is properly grouped with molluscum contagiosum, Paget's disease of the nipple and Bowen's so-called precancerous dermatosis.

Diagnosis.—At the outset, the disease may be mistaken for keratosis pilaris. The location of the latter is different, being seen chiefly on the extensor surface of the extremities. Ichthyosis is differentiated by the history of the affection appearing in early life, by the location, which favors the extensor surface and is rarely well marked on the face and by the difference in the character of the lesions. Acanthosis nigricans is more localized, affecting certain areas, such as the axillæ, groins and mucous membranes, and is accompanied by marked pigmentation. The diagnosis is easily settled by microscopic examination, acanthosis nigricans showing none of the characteristic "round bodies" of Darier's disease.

The differentiation from keratosis follicularis contagiosa is apt to be difficult. In the latter disease there is no coalescence of the papules and no papillomatous elevations. Histologic examination fails to show the round bodies which are characteristic of Darier's disease and the disease is apparently contagious and disappears readily under treatment.

Treatment.—The disease is incurable, though it may be considerably improved by treatment. This is similar to that of ichthyosis and consists of frequent bathing (using green soap) and the employment of keratolytic agents, such as salicylic acid (6 per cent ointment). Temporary benefit may follow the use of both radium and the Roentgen rays, favorable results being reported by Lieberthal, Mook and others. Destructive agents, such as the actual cautery or electrodesiccation, may also be tried.

Prognosis.—This is good as far as life is concerned. The disease may be ameliorated but cannot be cured.

KERATOSIS FOLLICULARIS CONTAGIOSA

Keratosis follicularis contagiosa is an extremely rare disease, first described by Brooke, which has been observed chiefly in children. It is a widespread, symmetrical eruption, suggesting the earlier stages of Darier's disease. The lesions begin as yellowish or blackish macules on which small papules develop, the center of which may show a horny plug or a spikelike filament. The lesions do not coalesce and do not form the papillomatous elevations seen in Darier's disease. The favorite sites are the back of the neck, trunk and extensor surface of the extremities. The cause is unknown. Due to its rapid spread at times in families, it has been thought to be a contagious affection. Histologic examination suggests Darier's disease, though the characteristic dyskeratotic cells are absent. The disease tends to persist if untreated but disappears readily under the use of antiparasitic or keratolytic remedies (green soap and salicylic acid).

ACANTHOSIS NIGRICANS

Acanthosis nigricans, first described independently by Pollitzer and by Janovsky, in 1890, is an extremely rare disease of children. According to Wieder, about ninety-five authentic cases had been reported at the close of 1926, and of these only a dozen occurred in children varying in age from infancy to fourteen years. The type which occurs in adults is usually associated with serious internal disease, especially carcinoma, the victims seldom living more than two years after the first appearance of the cutaneous lesions. With this malignant type we are not now concerned. The disease in children is not as extensive or as well marked as in adults and lasts indefinitely without seriously affecting the general health. No deaths have been thus far recorded. In one case the eruption beginning in childhood was known to have existed for over forty years.

Symptoms.—The onset may be gradual or sudden. The eruption consists mainly of two characteristic and striking changes, a marked wrinkling of the skin and intense pigmentation. The skin of the affected areas show an accentuation of the normal furrows and is in general soft and pliable, the wrinkled appearance disappearing when the skin is stretched. In addition there may be localized papillomatous and warty elevations. The pigmentation is the first change to appear and is deep brown or blackish in color. It is most pronounced in the central portion and decreases in intensity toward the margin. The favorite sites are the axillæ, neck, anogenital region, internal aspect of the thighs and the face, though other regions, including the mucous membranes, may be affected.

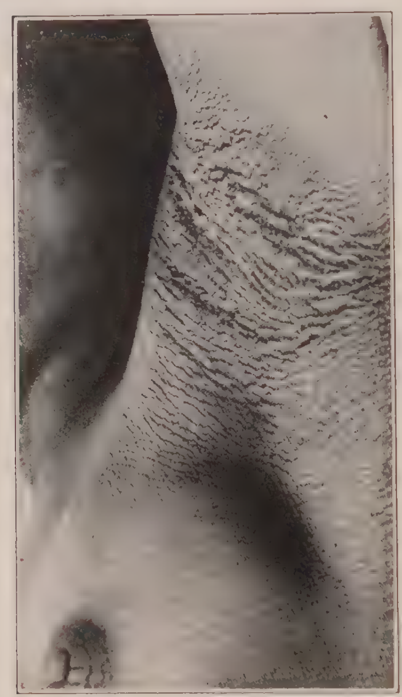

Fig. 98.—Acanthosis Nigricans Showing Pigmentation and Rugous Surface in a Characteristic Location.
(Courtesy of Dr. Lester M. Wieder.)

Etiology.—The cause of the juvenile or benign type is unknown. In these cases, there is an absence of any abdominal tumor which might be assumed to interfere with the function of the abdominal sympathetic. As Pollitzer says, in a subsequent publication, "we can only speculate that there is a congenital abnormality such as fibrous bands or a benign tumor interfering up to a certain point with the sympathetic functions." Wieder, in a thorough study of a juvenile case, found striking features indicating hypofunction of the suprarenal glands.

Diagnosis.—This should be readily made from the peculiar wrinkled condition of the skin, associated with intense pigmentation. Ichthyosis appears at or shortly after birth, is scaly and is least marked on the favorite sites of acanthosis.

Treatment.—This is entirely unsatisfactory, the disease being apparently incurable.

Prognosis.—This is good as far as life is concerned. The disease shows no tendency to disappear spontaneously. After attaining its maximum development, it remains indefinitely without change.

BIBLIOGRAPHY

SCLERODERMA

AYRES, S. Scleroderma as a Possible Manifestation of Chronic Arsenic Poisoning. Arch. Dermat. & Syph., Chicago, 1920, 2: 746.

CAROL, W. L. L., and VAN DER ZANDE, F. Adiponecrosis Subcutanea Neonatorum. Nederl. Tijdscher. v. Beneesk., Amsterdam, 1925, 69: 1317.

COCKAYNE, E. A. Case report. Brit. J. Dermat., London, 1915, 27: 288.

GOODMAN, H. A Case of Scleroderma Diffusum in a Girl, Nine Years of Age. J. Cutan. Dis., New York, 1918, 36: 210.

KNESCHKE, W. Sclerodermie im Säuglingsalter. Arch. f. Dermat. u. Syph., Wien & Leipzig, 1923, 146: 105.

LEWIN, G., and HELLER, L. Die Sclerodermie. Charite-Ann., Berlin, 1892, 19: 763.

LIEBERTHAL, D. Sclerema Neonatorum and Scleroderma. J. Cutan. Dis., New York, 1918, 36: 29.

LOEWENBERG, R. D. Zur angeborenen diffusen Sklerodermie. Dermat. Wchnschr., Leipzig & Hamburg, 1924, 79: 893.

OSBORNE, E. D. Morphœa with Hematrophy of the Face. Arch. Dermat. & Syph., Chicago, 1922, 6: 27.

STELWAGON, H. W. Diseases of the Skin, Philadelphia, W. B. Saunders Co., 9th Ed., 1923, p. 611.

WEIDMAN, F. D. Necropsy Findings in a Case of Congenital Scleroderma and Sclerodactylia. Arch. Dermat. & Syph., Chicago, 1920, 1: 374.

SCLEREMA

GRAY, A. M. H. Sclerema Neonatorum. Arch. Dermat. & Syph., Chicago, 1926, 14: 635.

HARRIS, F. G. Discussion of Lieberthal's Article. J. Cutan. Dis., New York, 1918, 36: 29.

MEYERS, L. W. A Mild Case of Sclerema Neonatorum. J. Cutan. Dis., New York, 1909, 27: 87.

PARROT. De L'athrepsie Le Progrès. 1874 and 1875.

DARIER'S DISEASE

BORGHOFF, J. A. Darier's Disease in the Infant. Arch. Dermat. & Syph., Chicago, 1921, 4: 609.

LIEBERTHAL, D. A Case of Darier's Disease. Psorospermose Cutanée Folliculaire Végétante or Keratosis Follicularis. J. Am. M. Ass., Chicago, 1904, 43: 242.

MOOK, W. H. Report of Four Cases of Keratosis Follicularis (Darier's Disease). J. Cutan. Dis., New York, 1912, 30: 722.

TRIMBLE, W. B. Observations on Keratosis Follicularis. J. Am. M. Ass., Chicago, 1912, 59: 604.

KERATOSIS FOLLICULARIS CONGENITA

BROOKE, H. G. International Atlas of Rare Skin Diseases, 1892, Vol. 7, Plate 22.

POLLITZER, S. International Atlas of Rare Skin Diseases, 1890, Plate 10.

——— Acanthosis Nigricans. A Symptom of a Disorder of the Abdominal Sympathetic. J. Am. M. Ass., Chicago, 1909, 1: 1369.

DERMATITIS EXFOLIATIVA NEONATORUM

CARLTON, E. P. Dermatitis Exfoliativa Neonatorum (Ritter's Disease). New York, M. J. M., 1907, 86: 573.

COLE, H. N., and RUH, H. O. Pemphigoid of the Newborn (Pemphigus Neonatorum). J. Am. M. Ass., Chicago, 1914, 63: 1169.

FISHER, J. E., and WITTENBERG, S. S. Dermatitis Exfoliativa Neonatorum. Arch. Dermat. & Syph., Chicago, 1924, 10: 289.

GUY, W. H., and COHEN, M. Dermatitis Exfoliativa Neonatorum. Arch. Dermat. & Syph., Chicago (in press).

HAZEN, H. H. A Comparison of Pemphigus Foliaceus and Dermatitis Exfoliativa Neonatorum (Ritter) with Remarks on the Etiology. J. Cutan. Dis., New York, 1912, 30: 325.

RITTER VON RITTERSHAIN. Die exfoliative Dermatitis jüngerer Säuglinge. Centralztg. f. Kinderh. 1878, p. 3.

MILROY'S DISEASE

HOPE, N. B., and FRENCH, H. Persistent Hereditary Œdema of the Legs with Acute Exacerbations. Milroy's Disease. Quart. J. Med., Oxford, 1907, 1: 312.

MILROY, W. F. An Undescribed Variety of Hereditary Œdema. N. York. M. J., 1892, 56: 505.

CHAPTER XVIII

NEW GROWTHS

KELOID

Keloid is a rather uncommon affection, occurring in children less often than in adults. Following traumatism, which may be trifling, or without apparent cause, a pinkish, hard, smooth, shiny, small nodule appears. This increases slowly and after attaining a certain size remains indefinitely without further change. There is frequently only one lesion, but several or at times many may be present. The favorite sites are the sternal region, face, ears and neck, the extremities being less frequently affected. Keloid varies greatly in size and shape. It may be round, oval or elongated or show peculiar bifurcated projections suggesting the claws of a crab.

The name is derived from the Greek word meaning a crab's claw. In some cases the lesions attain the size of large tumors which are not infrequently pedunculated and are seen chiefly in negroes. The surface of the lesions may present dilated blood-vessels and in rare instances ulceration occurs. Subjective symptoms are usually absent, though at times there is some itching, but rarely pain. A characteristic feature of keloid is that it extends beyond the original limits of the preceding injury, differing in this respect from hypertrophic scars. It also shows an invariable tendency to recur after excision.

Etiology.—It was originally thought that there were two forms of the disease—spontaneous or true keloid, in which traumatism played no part, and false or scar keloid, which followed some injury. At the present time all keloids are considered to be traumatic in origin even though the traumatism be insignificant. In children they have been known to follow abrasions, puncture of ear lobules, bites of insects, and to originate in the scars of syphilis, tuberculosis, varicella and other diseases. The cause of keloid is unknown. We merely know that certain individuals exhibit this peculiar tendency. It is also said to be familial at times and is a well-known characteristic of the negro race. The relationship of the disease to tuberculosis and hyperthyroidism has been suggested but not proven. Histologically a keloid is a hard fibroma.

Treatment.—The Roentgen rays or radium are the most useful agents in the treatment of keloid and are equally efficient. Great caution must be exercised in avoiding the production of an erythema with the possibility of subsequent telangiectases. A successful outcome is only obtained when the growth is of recent origin. After a year or more, the results are unsatisfactory. Surgery alone is of no value, recurrence taking place promptly after removal. It should always be combined with radiotherapy. As in the treatment of hypertrophic scars, fibrolysin may be tried, but the outlook is not promising. Carbon dioxid snow has been reported to be of value in some cases.

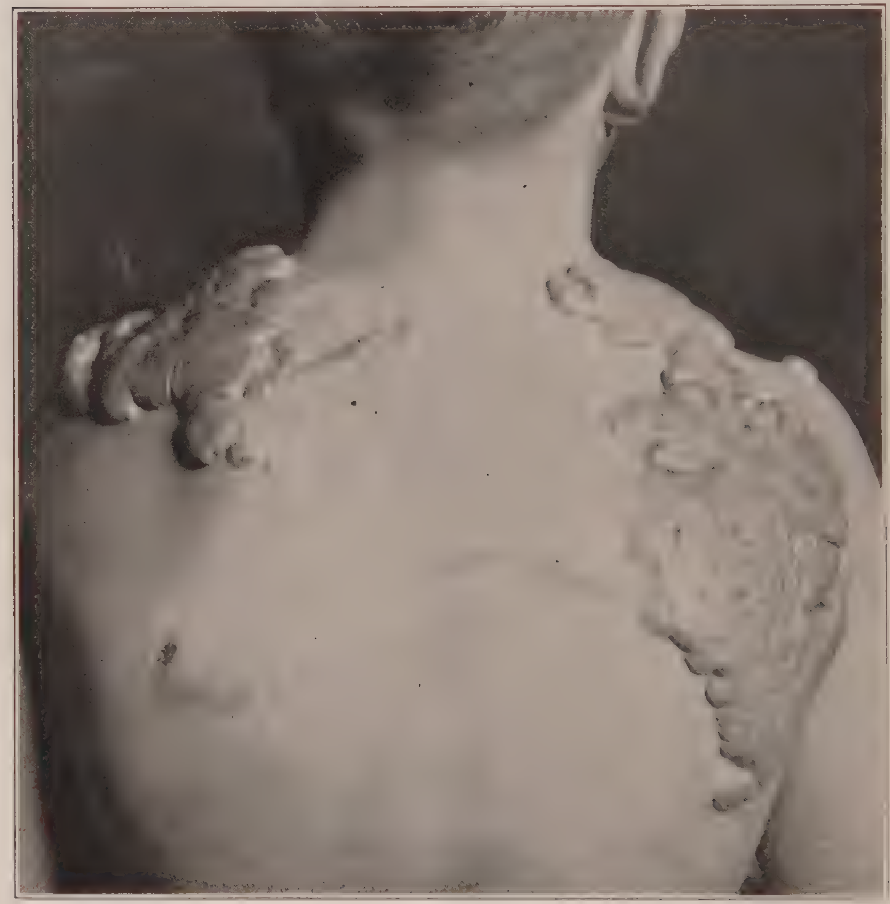

Fig. 99.—Keloid Following a Burn.

Prognosis.—This is rather unfavorable as far as cure is concerned, especially when the lesions are numerous and large.

CICATRIX

(*Scar*)

Symptoms.—Cicatrices or scars vary greatly in size, shape, consistency and configuration. They may be round, linear or irregular in shape. The majority are more or less depressed, some are on a level with the surface of the skin while a few are more or less elevated (hypertrophic type). Scars may be soft, thin and pliable, as in syphilis, or rough, thick and irregularly furrowed and ridged, as in some forms of tuberculosis. The color at the outset is reddish, but in the great majority of cases it becomes gradually whitish. At times the reddish color persists or becomes purplish. Subjective symptoms are usually absent, though some pain is occasionally present from pressure on nerves. Fissures may occur at times in scar tissue due to lessened elasticity. Almost every scar tends in the course of time to become less conspicuous, and even the ugly pits of smallpox may in later years become much less noticeable. Scars may, however, undergo hypertrophy and become elevated and very disfiguring. In such cases they do not extend beyond the limits of the original injury or disease which preceded them.

Scars are not pathognomonic of any disease. Their causation may, however, be frequently surmised by a study of their appearance, consistency, location, grouping and configuration. The pitted scars of variola and varicella are recognized by everyone. Grouped scars in patches with a unilateral distribution are characteristic of zoster. Superficial pitted scars symmetrically situated on the elbows and showing no particular grouping are strongly suggestive of papulonecrotic tuberculids. The location of scars on the face, ears and hands is helpful in the diagnosis of a preceding hydroa vacciniforme, while superficial finger nail sized scars irregularly scattered over the lower extremities suggest ecthyma. In general, the scars produced by syphilis show remarkably little deformity in comparison with those of some forms of tuberculosis. They are soft, thin, pliable and of a tissue-paper consistency. Their grouping in circles or portions of circles and the formation of bean- or kidney-shaped areas may be almost as characteristic as the original nodules, or gummata, of syphilis which caused them. While the scars of the flat type of lupus may be fairly thin and smooth, those which follow ulcerating lupus or scrofuloderma are thick, uneven, with irregular bands and bridges of tissue and are frequently very disfiguring.

Etiology and Pathology.—Scars consist of newly formed connective-tissue, replacing loss of substance which involves the cutis or deeper structures. Superficial injuries to the skin, such as excoriations from the finger nails, do not cause scars. The majority of scars follow ulceration due either to traumatism or disease. They may also be caused by diseases of the skin unattended by ulceration, such as lupus vulgaris or syphilis, in which there has been a previous infiltration followed by absorption. Characteristic scars of this type are linear furrows radiating from the corner of the mouth in congenital syphilis. Scars may also result from pressure, as seen in favus from the presence of the scutula or cups. Histologically, scars contain blood-vessels, lymphatics and nerves, but no elastic tissue or smooth muscle and, unless very superficial, no hairs, sebaceous or sweat glands.

Treatment.—For the majority of scars, treatment is not sought nor is it advisable, in view of the fact that spontaneous improvement with time is the rule. Irregular broad scars such as those from scrofuloderma may be excised in suitable cases, substituting a linear and less noticeable defect. Pitted scars may be made somewhat more shallow and less conspicuous by application of trichloracetic acid or the electric cautery to the steep edges. Hypertrophic scars may often be improved by the Roentgen rays or radium, though caution must be used not to cause telangiectases. The treatment is tedious and must be undertaken with great care. No results of any value are obtained by fibrolysin.

VERRUCÆ

(*Warts*)

The term verruca, from the Latin word meaning an elevation or excrescence, refers to lesions which are common in childhood and known to everyone as warts.

Symptoms.—The common type of wart (verruca vulgaris) varies in size from a pinhead to a coffee bean, is sharply defined and elevated with rough mammillated flattened or rounded surface. The base may be constricted and almost pedunculated. The lesions are grayish or brownish and may be single or multiple and are often numerous. They may coalesce at times. Common warts are seen most often on the back of the hands and fingers and in the nail fold. They also occur on the scalp, face or any region including the mucous membranes. Ordinarily they cause no subjective symptoms. At times, however, they may become inflamed from invasion of pyogenic cocci and present a reddish areola and become somewhat painful and tender. Other types of warts may coexist. A variety of the common wart is the digitate type. It consists of a "group of separated finger-like projections arising from one base" (Pusey) and differs from verruca vulgaris in the greater amount of papillary hypertrophy.

The filiform wart is a delicate and flexible threadlike projection, consisting of one or more hypertrophied papillæ. The lesions may be a quarter of an inch in length. It is seen most often on the face and neck and especially about the eyelids.

The plantar wart is seen on the bearing surface of the foot (toes, ball of foot and heel). It appears at first glance like a corn or small callus. Closer examination shows it to consist of grouped filiform elevations bordered by a hard ring. The plantar wart may be single or multiple and may be associated with other types of verrucæ. The lesions are characterized by pain and tenderness, the latter being often severe.

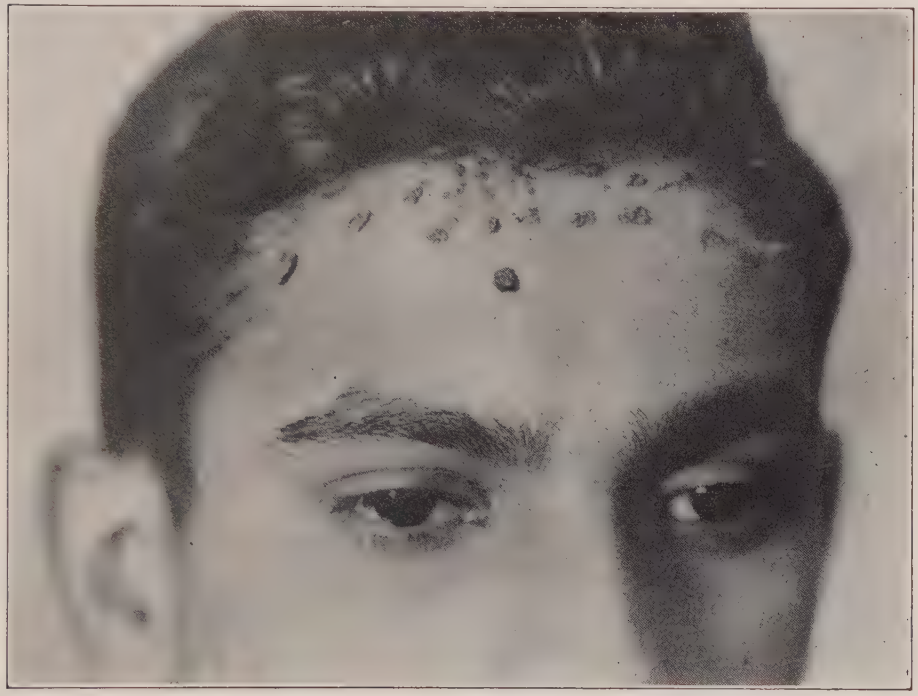

FIG. 100.—VERRUCA VULGARIS (COMMON WART).

The flat or juvenile wart (verruca plana juvenilis) occurs chiefly in children as its name would imply. It is a sharply defined, inconspicuous, small pinhead, flat elevation. The surface is smooth or very slightly scaly and its base is round or polygonal, often simulating lichen planus. The lesions are flesh colored or slightly yellowish. They may be discrete or coalescent, few in number or numerous. Several hundred may be present at times. They cause no subjective symptoms and may be associated with other varieties of warts.

The acuminate wart, also known as condyloma acuminatum or venereal wart, is seen principally in adults, though at times in children. It consists of filiform projections, coalescing to form cauliflower growths, which are more or less pointed and show a constriction at the base. They occur at the mucocutaneous junctions. In males they are seen in the sulcus and in females on any part of the vulva. The anal, perineal and intergluteal regions may also be involved. There is often discharge of foul odor and some tenderness on motion. With seborrheic warts, which occur in middle and old age, we are not now concerned.

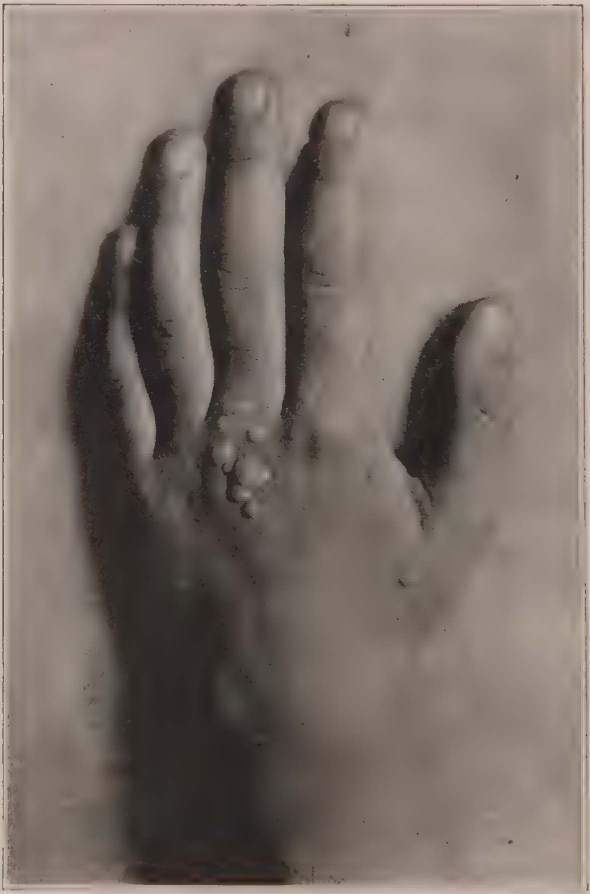

Fig. 101.—Verruca Vulgaris (Common Wart).

Course.—The course of all warts is invariably capricious. They are apt to remain for months or several years but disappear in time without trace.

Etiology and Pathology.—All warts except the acuminate type are common in children, much more so than in adults. The flat or juvenile warts are seen most frequently in children, but also occur in adolescent girls and young women, as well as in men on the bearded region. Warts are undoubtedly infectious and auto-inoculable, though the causative organism has not yet been discovered. Wile and Kingery produced them experimentally by injecting a filtrate from macerated warts into the epidermis. The acuminate type is seen chiefly in uncleanly persons on parts of the body where there is abundant heat and moisture. It was formerly considered to be due to the gonococcus.

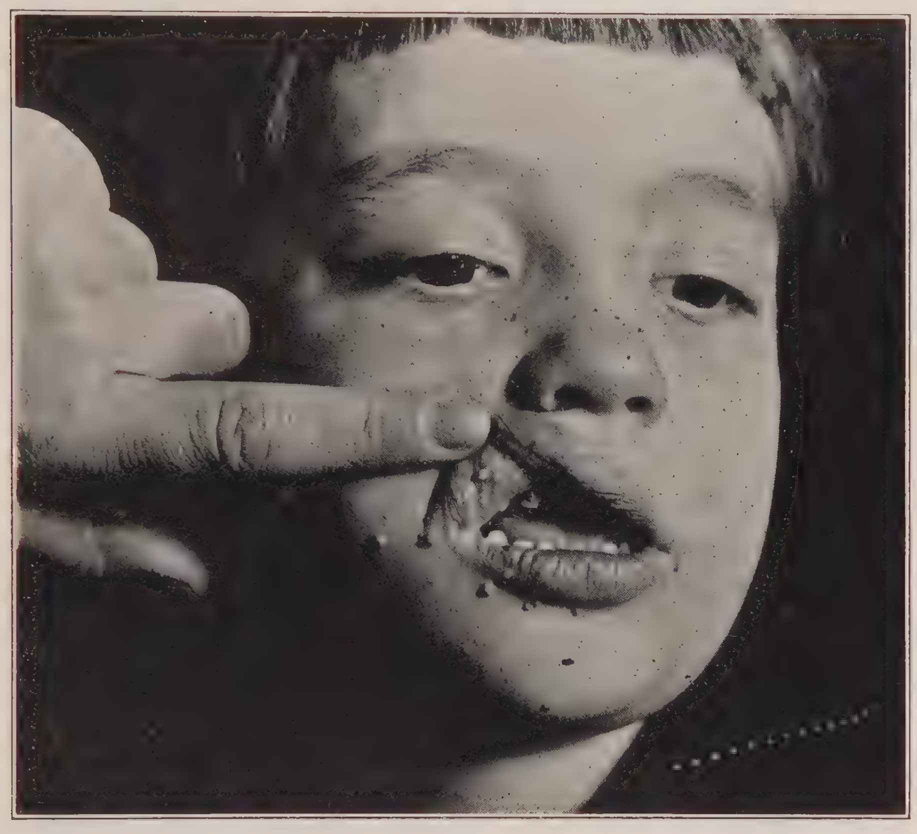

Fig. 102.—Verrucæ (Warts) of Skin and Mucous Membrane.

Treatment.—In the treatment of common warts, it should not be forgotten that they all disappear spontaneously after a variable time. Care should therefore be taken, especially in girls, to avoid the production of scars. In a certain small proportion of cases, common warts melt away like magic after the treatment with Roentgen rays. This applies either to single lesions which are closely screened with lead foil and given a massive dose or to large groups of warts which are treated without screening by a smaller dose (one skin unit of unfiltered rays). Radium may accomplish the same results. The advantages of radiotherapy are that it causes no pain, involves no risk of infection and, if successful, leaves no scars. Chemical caustics are often used for common warts of which trichloracetic or glacial acetic acid or caustic potash are the best.

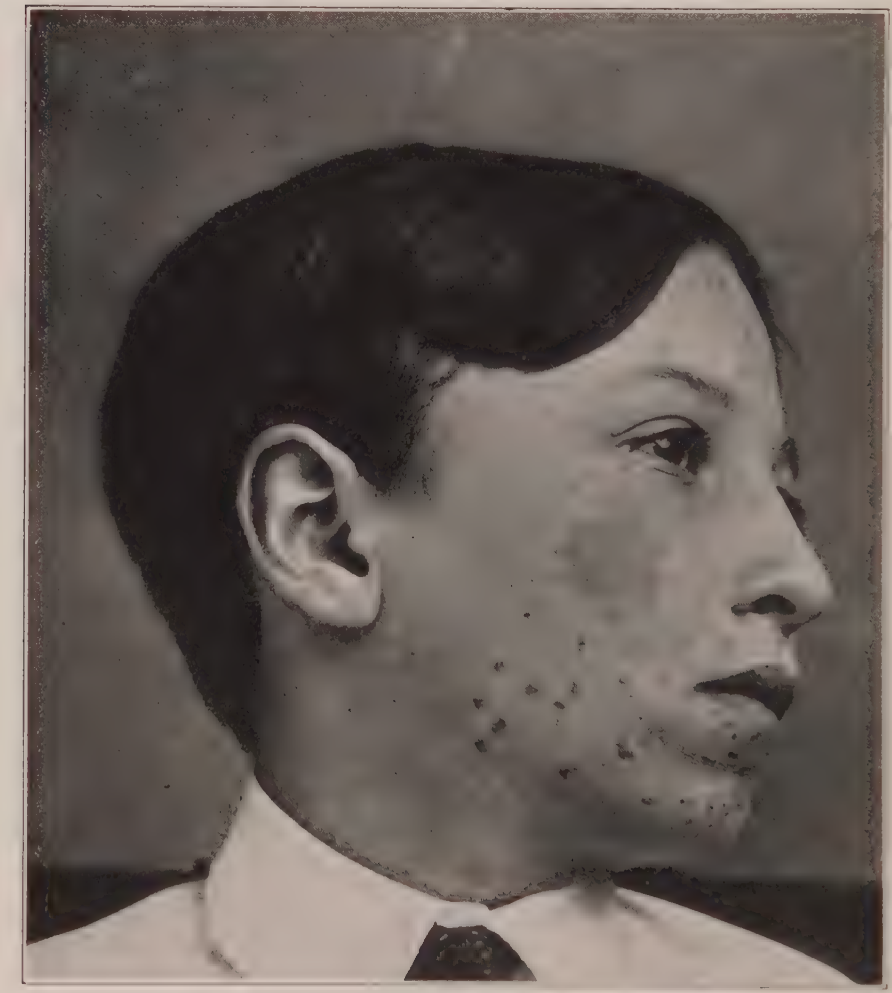

FIG. 103.—VERRUCA PLANA JUVENILIS (FLAT WART) BEFORE TREATMENT.

Nitric acid should not be used on account of its tendency to produce keloidal scars. Salicylic acid (10 per cent in collodion) is not very satisfactory in my opinion. Freezing with carbon dioxid snow is advocated by some, but it has not proved very successful in my hands. A revival of the use of liquid air has lately been urged by Irvine, who recommends intermittent applications for three minutes for an ordinary wart. Liquid air is now obtainable in the larger cities where oxygen is manufactured and may be kept in a thermos bottle for several days. In my practice, when the Roentgen rays fail I usually employ electrodesiccation for removing common warts.

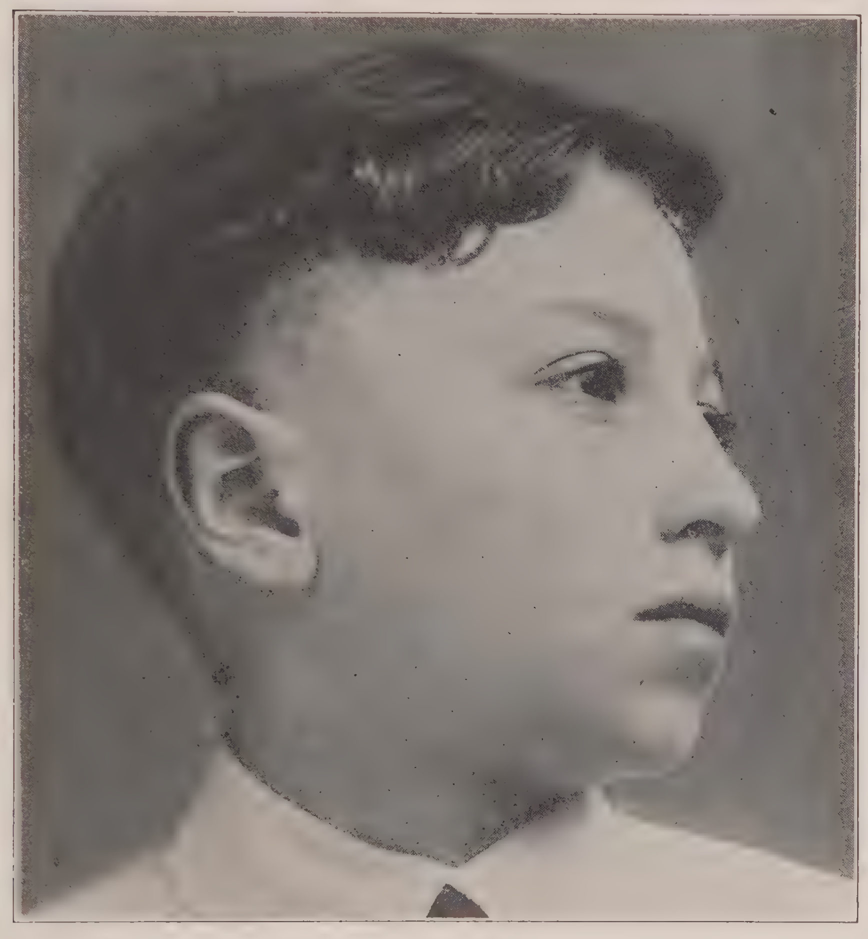

Fig. 104.—Verruca Plana Juvenilis after Internal Administration of Mercury.

Filiform warts are easily removed with a sharp curet, while acuminate warts may be satisfactorily treated by electrodesiccation or the actual cautery. The latter may disappear under various applications, such as a solution of permanganate of potash (1 : 2000) which also acts as a deodorant.

For the treatment of flat juvenile warts I would strongly advise a trial of protiodid of mercury in doses of ¼ to ⅛ grain three times a day. This was suggested by C. J. White and was successful in ten of the eleven cases he reported. In a series of ten cases of my own, the eruption disappeared in five at the end of three to five weeks. Arsenic is recommended by some as is also the local application daily of Vleminckx's solution.

CALLOSITAS

Callosities are familiar horny thickenings covering parts exposed to continued pressure. They are flat, grayish-yellow plaques, more elevated in the center and with ill-defined border. They are found chiefly on the palms and soles. Callosities are not painful as a rule like plantar warts or corns. At times they become inflamed and may suppurate and in rare instances undergo necrosis. They occur chiefly in adults as a result of various occupations but may be seen in children as a result of work or play and invariably in those who are habitually barefooted. They remain as long as pressure continues. The thickness of a callus may be lessened by paring with a razor or by the use of salicylic acid in collodion or plaster. The lesion may be temporarily removed by radium.

CLAVUS

Clavus (from the Latin word meaning a nail), is the well-known corn, probably the commonest disease of the skin in adults. In children it is rare but occurs at times. A corn consists of a small circumscribed keratosis which is situated most often on the outer aspect of the little toe and less frequently on the dorsum of the second toe. It is roughly conical in shape, the base looking outward and the apex inward and pressing on the nerves of the cutis. Pain is a characteristic symptom. Corns may become inflamed and even ulcerate. The cause of this minor but often troublesome affection is pressure from ill-fitting shoes. An unusual type of the disease is known as soft corn, the lesion appearing between the toes or rarely between the fingers and becoming soft from maceration due to friction, heat and moisture.

The best treatment for corns is prophylaxis and consists in wearing properly fitting shoes and hosiery. Palliative treatment consists in paring them with a razor after preliminary soaking in hot water and then applying strips of adhesive plaster or ring-shaped pads. They may be flattened by applications of salicylic acid in collodion or plaster but do not disappear permanently as long as pressure remains. In treating soft corns, cleanliness is essential. They should be washed frequently with alcohol and kept as dry as possible by a dusting powder. If this is not successful they may be easily removed by the actual cautery or by electrodesiccation.

MOLLUSCUM CONTAGIOSUM

Molluscum contagiosum, first described by Bateman, in 1817, is an uncommon disease. Although it occurs in adults it is seen principally in children.

Symptoms.—The eruption begins as fairly firm, pinhead lesions which are waxy or pearly-white in appearance. They enlarge gradually, become a little softer and show characteristic umbilication. In the center there is usually a minute opening from which a firm transparent or cheesy mass may be expressed leaving a bleeding cavity. Like common warts, the lesions of molluscum show a considerable variation in size. Ordinarily they are not larger than a split pea, but have been known in very rare instances to form tumors of 1 to 3 inches in diameter. The eruption may consist of a single lesion, though there are nearly always a dozen or more and at times more than a hundred. I have reported a case with about one hundred and fifty lesions, and in Frick's case over four hundred were present. The eruption occurs most often and most profusely on the face, especially in the neighborhood of the eyelids. Involvement of the border of the lids may lead to conjunctivitis, and in a case of Hender-

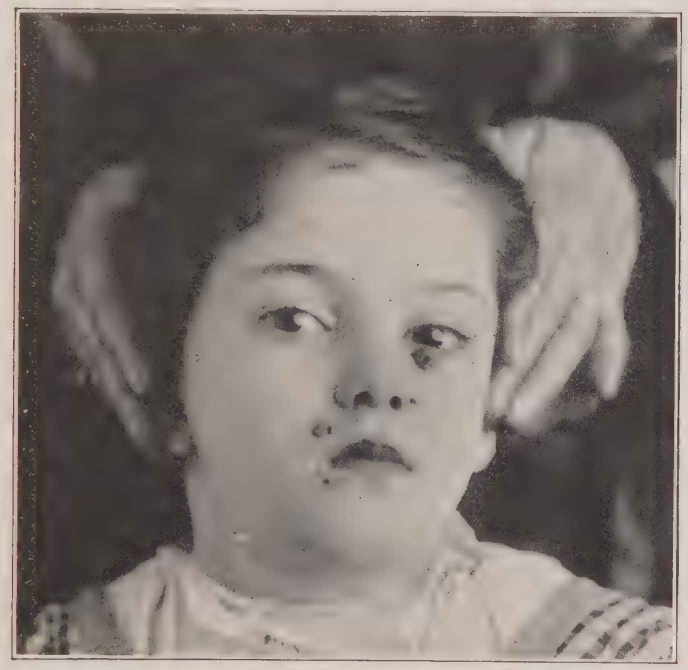

Fig. 105.—Molluscum Contagiosum.
Note different size of lesions. One below the left eye shows characteristic umbilication.

son (quoted by G. H. Fox) the eye was destroyed. The eruption may also occur on the neck, chest, arms, or in any situation including the mucous membranes. The tendency to involve the genitals and inner aspect of the thighs is seen mainly in adults. There are no subjective symptoms. Warts are frequently seen in association with molluscum, though this may well be a coincidence.

Course.—The disease is persistent if untreated but eventually disappears without leaving any trace. An exceptional case is quoted by Pusey presenting a large tumor which persisted for thirty years. The lesions occasionally become infected and suppurate, after which spontaneous cure results.

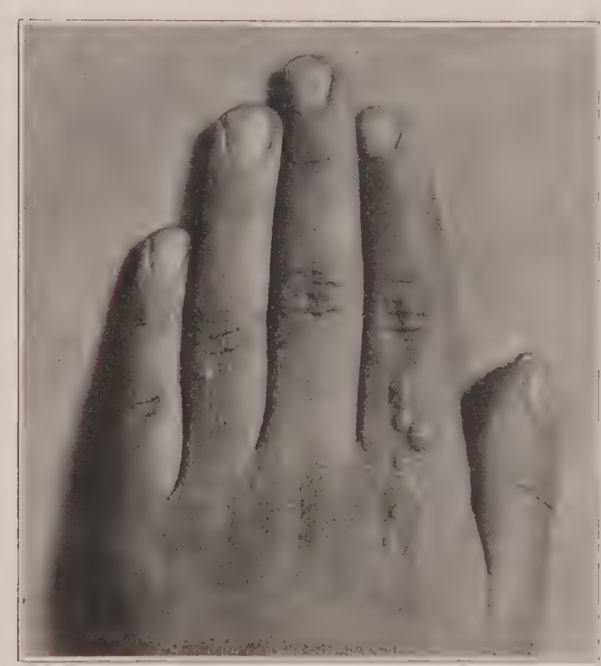

Fig. 106.—Molluscum Contagiosum.
Lesions of varying size, some showing umbilication.

Etiology and Pathology.—The disease is seen mostly in children and adolescents of the poorer classes. It occurs usually in sporadic form, when the origin is difficult or impossible to ascertain. Numerous household or institutional epidemics have, however, been observed, pointing to the contagiousness of the disease. Stelwagon has collected the reports of various epidemics, and Knowles has reported an extensive one affecting fifty-nine children. The total number of institutional epidemics quoted by these writers amounted to fourteen, in which 322 children were affected. Physicians have been known to contract the disease after contact with patients suffering from molluscum. While undoubtedly contagious, the degree of contagion is mild.

No causative organism has as yet been satisfactorily demonstrated, but the disease has been repeatedly reproduced in other persons by inoculation. Wile and Kingery have done this with an extract of molluscum tumors passed through a Berkefeld filter. A similar disease of birds is well known and persons handling them have been known to contract molluscum.

The histologic picture is striking and characteristic and does not resemble that of any other skin disease. It consists of a lobulated epithelial tumor constricted at the base and showing a peculiar arrangement of cells. The latter, which were formerly thought to be parasites, are the so-called molluscum bodies, representing a peculiar dystrophic change of the epidermis.

Diagnosis.—When the lesions are small, they may be mistaken for warts, and when inflamed, their true nature is concealed. In the typical cases, the diagnosis is easy. The pearly or waxy appearance of the tumors with umbilication and central opening, their varying size, lack of subjective symptoms and predilection for the face in children are characteristic.

Treatment.—This is simple and consists in squeezing out the contents of the lesions with or without a preliminary small incision and applying iodin on a toothpick to the central cavity. The curet may be cautiously used, but no scars should be produced as the disease eventually disappears without any permanent trace. Where the lesions are numerous, ammoniated mercury ointment may be used. In two cases in which I used the Roentgen rays experimentally, the eruption disappeared after eight fractional doses of unfiltered rays given at weekly intervals.

Prognosis.—This is good, as the disease is readily cured by treatment and even when untreated it nearly always disappears spontaneously.

LIPOMA

Symptoms.—Lipoma may be either circumscribed or diffuse, the former representing the acquired and the latter the congenital type. The circumscribed type varies from a barely perceptible enlargement to lesions the size of a grapefruit. The overlying skin is usually normal, though at times there may be slight pigmentation; as a rule, it is freely movable on the tumor and the latter is itself movable on the deeper parts. The lesions are soft and show characteristic lobulation and in rare cases are more or less pedunculated. As a rule, there are no subjective symptoms, though at times there may be some tenderness and pain. There may be one or many lesions. Diffuse lipoma is irregular in outline and asymmetrical in location and its growth is more rapid than that of the circumscribed form. The favorite sites are the lumbar and gluteal regions, neck and extremities, especially the hands and feet, though any region may be involved. It is seen mostly in regions where fat is normally present. It is very rare on the scalp and has been seen occasionally on the cheeks arising in the fat pad of the buccinator muscle as in two cases reported by Ransohoff.

Lipoma may appear without other changes or be associated with various developmental defects such as pigmented nevi, spina bifida, encephalocele or dermoid cysts. In extensive pigmented and hairy nevi, the associated lipomatous element may be conspicuous, as in the case of von Walther (quoted by Jacobi) in which there were twenty-four tumors, the largest being 19 inches in circumference and weighing between 16 and 18 pounds. In my own case of extensive nevus (see Chap. I), the chief annoyance of which the patient complained was the ill-smelling discharge which accumulated in the folds of some of these tumors and which was relieved by excision of the more prominent ones. Associated with diffuse lipoma of the extremities, there may be increase in growth of other structures, including the bones. The entire extremity may be increased in both length and circumference, the hand of a boy of sixteen, reported by Henderson, having weighed 8 pounds.

The syndrome described by Dercum as adiposis dolorosa is usually seen in middle life, though cases have been reported at the ages of eleven and twelve by White and by Strübing. The principal symptoms of this affection include lipomatous tumors, pain, asthenia and psychic disturbances, some of which may be absent. Another form of diffuse adiposity is seen in Fröhlich's syndrome, consisting mainly of the lipomatous condition and sexual infantilism due to pituitary dysfunction.

Etiology and Pathology.—Congenital lipoma is rare and the acquired form in childhood is extremely so. Lipoma is undoubtedly hereditary at times as shown in cases recorded in the exhaustive study by Lyon. This writer thinks the cause of all lipomatous changes is to be found in primary disturbances of the ductless glands which secondarily affect the nervous system or vice versa. The question has not yet been settled. Histologically, the tissue of lipoma does not differ from that of ordinary fat, except in the smaller size of the fat-cells.

Diagnosis.—Lipoma is recognized by its soft consistency and general absence of subjective symptoms. In circumscribed lesions the characteristic feature is lobulation.

Treatment.—Excision is the only method of treatment. This is easily performed when the growth is circumscribed and encapsulated. In the diffuse growth with numerous irregular prolongations, complete removal may be difficult or impossible.

Prognosis.—This is good as far as life is concerned, lipoma being the most benign of all new growths. After attaining a certain size, the lesions remain indefinitely without any change.

XANTHOMA

Xanthoma is a rare disease, occurring at all ages, but less commonly in children than in adults. Three types are recognized—xanthoma tuberosum multiplex, xanthoma planum and xanthoma diabeticorum. The last mentioned has never been observed in childhood, while xanthoma planum is essentially a disease of adults, occurring on the eyelids. It is usually called xanthelasma by American writers. The first mentioned type will alone be discussed in this chapter.

Symptoms.—Xanthoma tuberosum appears in childhood in two clinically different forms. In one, the cutaneous lesions are precisely similar to those observed in adults, while in the other, there is a resemblance to urticaria pigmentosa.

The adult type of the disease makes its appearance gradually and consists of nodules or tumors, infiltrated plaques and striated lesions. The elevated ones may be pea- to bean-sized or as large as a hen's egg, and are smooth, fairly firm, insensitive to the touch and often lobulated. The color is yellow or a mixture of red and yellow. No ulceration or necrosis occurs and subjective symptoms are absent. The favorite sites of the nodules are the extensor surface of the larger joints and the buttocks. At times they are scattered irregularly over the trunk and may affect the cornea, conjunctiva and mucous membranes. The striated lesions are seen on the palms and palmar aspect of the fingers, occurring chiefly in the natural folds of the skin. Almost all of the tissues of the body may at times be affected including the tendon sheaths, respiratory and gastro-intestinal tracts, cardiovascular system and viscera. The cases with visceral involvement are rare in children. There is occasionally jaundice or a peculiar yellowish discoloration of the skin, known as xanthochromia, in which bile pigment is not present in the urine.

In the cases resembling urticaria pigmentosa the lesions are more generalized and profuse. They are smaller, as a rule, and many are of a lighter color than in the adult type. Some, however, have a bright saffron-yellow tint which is easily seen at a distance. The lesions show slight or moderate flat elevation, as opposed to the rounded tumor masses of the adult type. Such cases are recorded by Arzt, Winfield, Dubreuilh and others. In Winfield's case, the early lesions were brownish macules, on which orange or saffron colored, pea-sized, soft, and flabby papules developed in the course of six weeks. A similar case (I. Apfelberg) recently came under my observation (see Fig. 107). The patient was a girl three years of age, in whom the disease had been present for five months. The greater part of the eruption consisted of pea- to bean-sized light brownish macules on which bright yellow, soft, wrinkled, slight elevations had appeared. It was stated by the parents that the change in the appearance of individual lesions occurred within a space of six weeks. The characteristic signs of urticaria pigmentosa were absent and the diagnosis was confirmed by histologic examination.

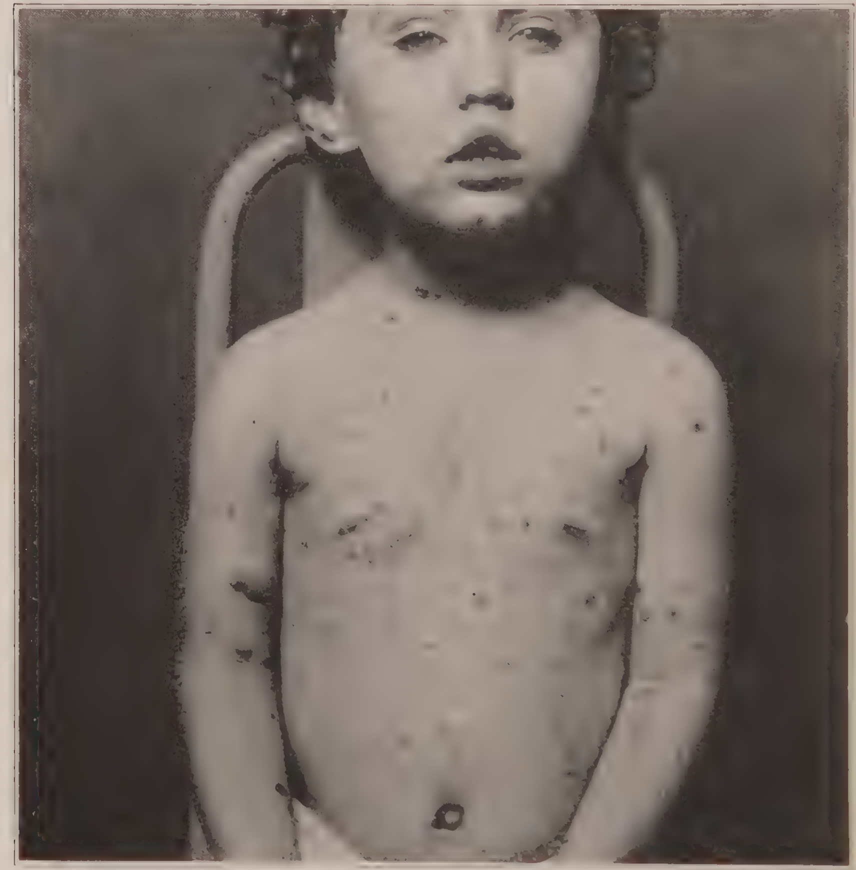

FIG. 107.—XANTHOMA
Rare type resembling urticaria pigmentosa

The course of xanthoma is slowly progressive. After attaining a certain development it tends to remain stationary without undergoing further change. In rare instances death has followed asphyxiation from involvement of the trachea or has been due to cardiac involvement.

Etiology.— The disease has been observed at birth and may occur at any period of infancy or childhood. In a series of seventy cases collected by Török its first appearance was noted before the age of sixteen in thirty cases. Xanthoma has been recorded in three generations and at times more than one member of a family may be affected. Girls suffer from xanthoma more frequently than boys.

The cause is unknown, though the frequent increase of cholesterol in the blood suggests an etiologic relationship. Pollitzer and Wile consider the process to be an irritative connective-tissue hyperplasia in which the extravasation of cholesterol fatty acid-ester, present in excess in the blood, serves as the stimulus.

Diagnosis.—The recognition of the adult type of xanthoma tuberosum is not difficult on account of the color and situation of the lesions, their lack of subjective symptoms and chronicity. The type which resembles urticaria pigmentosa may be mistaken for this disease. In urticaria pigmentosa, however, the lesions become distinctly elevated and reddened by vigorous friction and there may be dermographism and itching, all of which are absent in xanthoma. The diagnosis is easily settled by histologic examination, urticaria pigmentosa showing the presence of groups of mast-cells and xanthoma peculiar cells containing fat, together with connective-tissue hyperplasia.

Treatment.—This is unsatisfactory, as the lesions can only be removed by the knife or by destructive methods (cautery, electrodesiccation, electrolysis, etc.). In the case of circumscribed large tumors, such treatment is advisable. When the eruption is profuse, it could not properly be considered. On theoretical grounds, a diet which lessens the cholesterol content of the blood is indicated.

Prognosis.—This is good as regards life in nearly all cases. The disease after reaching a certain age tends to remain permanently.

MALIGNANT NEW GROWTHS

Malignant new growths of the skin are rare in infancy and childhood.

Epithelioma

Malignant epithelial tumors are seen only in the rarest instances, though undoubted cases have been reported. Warthin in his statistical study of malignant neoplasms in the young, records the presence of squamous cell epithelioma of the ear lobe of a child of four years and on the leg of a child of eleven. Roth saw a basal-cell epithelioma on the buttock of a girl of eleven.

Sarcoma

Sarcoma of the skin occurs as a primary or secondary growth. Both forms are rare, particularly the former. Probably the most frequent malignant tumor of childhood is that type of round-cell sarcoma known as lymphoblastoma, which originates in lymphoid tissue and spreads throughout the lymphoid system. Sarcoma may be single or multiple, pigmented or non-pigmented, and, except in the Kaposi type, is always extremely malignant. Its malignancy increases with the excess of cellular over fibrous elements, with the smallness of the cells and the activity of proliferation. The degree of malignancy cannot be judged with certainty by the histologic structure. Sarcoma of the skin is composed of round, spindle or giant cells with which there may be a varying mixture of fibrous or vascular tissue. The fibrosarcoma is the least malignant and the small round-cell the most malignant type of the disease.

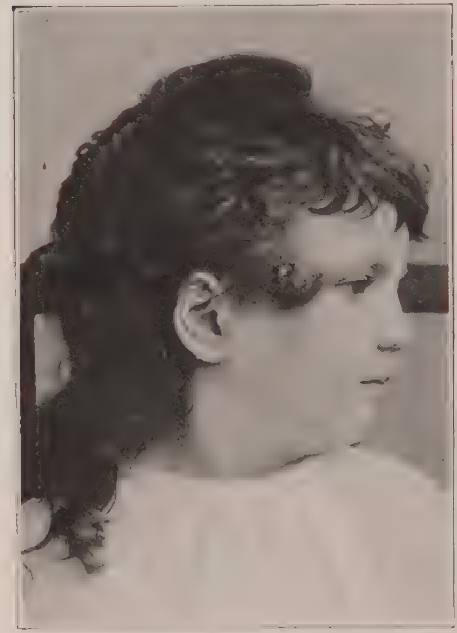

Fig. 108.—Lymphoblastoma.
Three months' duration. Before treatment.

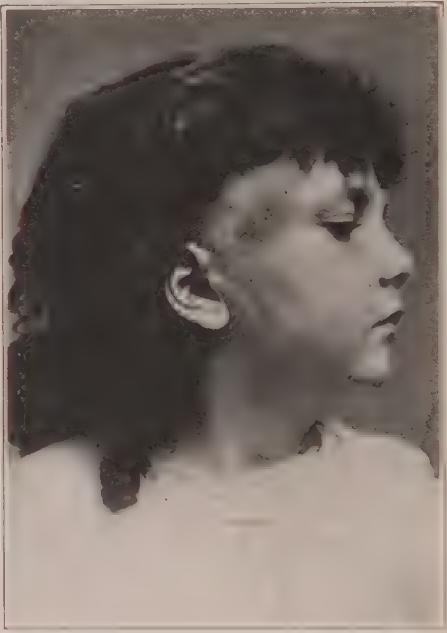

Fig. 109.—Lymphoblastoma.
One week after treatment by Roentgen rays. Later new lesions appeared with death six months after treatment.

Non-pigmented sarcoma appears as a round, oval, sessile elevation of the skin varying from a pea to a cherry or more in size. It may originate in scar tissue in a nevus or in normal skin. Ott recorded the case of a boy of two years and three months in whom a round-cell sarcoma developed in the scar of a dog bite and Schultz recorded the same type of the disease in the plantar tissue of a child, the lesion following a punctured wound from a nail. In sarcoma, the overlying skin is smooth and shiny and may be bluish or purplish or of normal color. The tumor is firm to the touch, though not of the extreme hardness of epithelioma. The growth is slow or rapid and may ulcerate or fungate. Metastases take place eventually through the blood stream and appear in the neighborhood of the original lesion and in the viscera, death following from exhaustion or septic complications. This occurs usually within six months to two years after the first appearance of the disease. Sarcoma has been known to undergo involution, following infection by pyogenic cocci or traumatism.

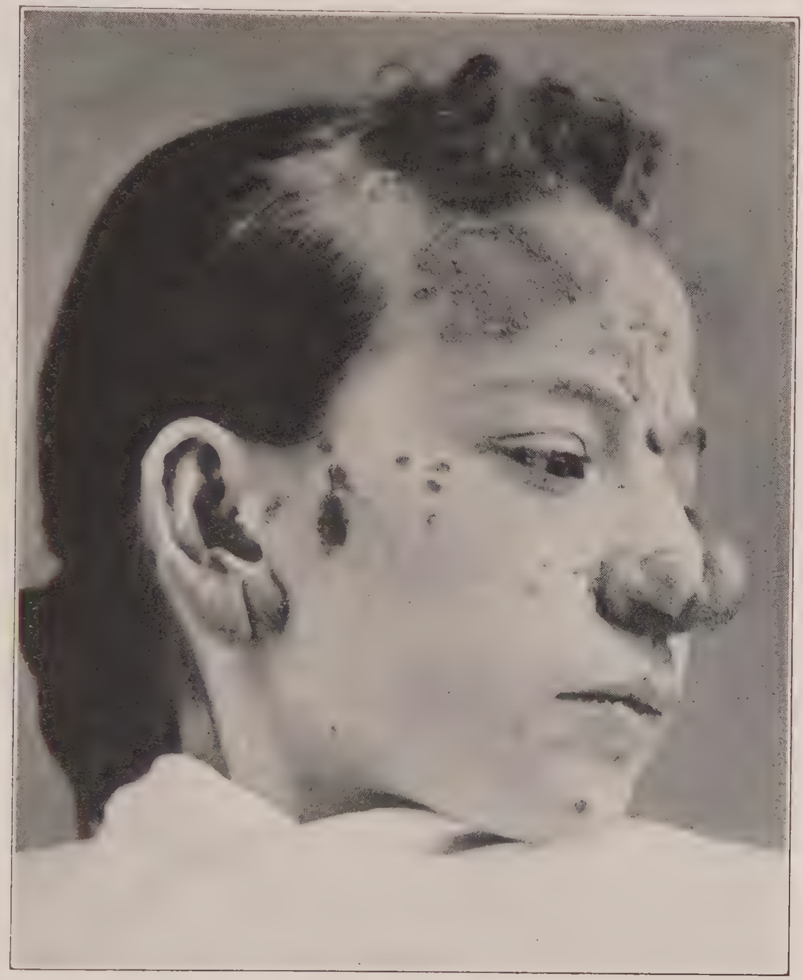

Fig. 110.—Sarcoma.

In multiple sarcomatosis, it may be difficult to ascertain whether the growths in the skin are primary or secondary to visceral lesions. Multiple tumors are usually of the spindle or round-cell type, though a case of primary giant-cell sarcoma with visceral metastases in an infant of six months is recorded by Odstrcil. Dubreuilh has observed five cases of general sarcomatosis in infancy and similar cases are recorded by others.

MULTIPLE PIGMENTED SARCOMA

The rare disease, known as Kaposi's sarcoma, was first described by him as idiopathic multiple pigmented sarcoma, in 1872. It begins on the extremities, especially the legs, and extends upward in a symmetrical and progressive manner. It consists of small, soft, bluish nodules and flat elevated patches, the latter suggesting hypertrophic lichen planus. The lesions rarely ulcerate and large tumors are conspicuously absent. The disease lasts for five years on an average, at times much longer. It is extremely rare in infancy and childhood, cases being recorded in early life by Kaposi, deAmicis, Corlett (infant two years old), Fordyce and MacLean. The diagnosis in the last case would appear doubtful from the unusual situation of the lesions and from lack of confirmation by histologic examination. Histologically, Kaposi's sarcoma is an angiofibrosarcoma, associated with hemorrhage in the affected areas.

MELANOMA

Melanoma is a convenient term to include lesions which are occasionally of sarcomatous though usually carcinomatous type. Melanoma is the most rapid in growth and malignancy of all neoplasms. It has its origin in pigmented structures, such as a pigmented spot or mole or occasionally the choroid of the eye. It may be primary or secondary in the skin. The most frequent source is a nevus which has been subjected to constant irritation. Metastases appear rapidly and may seem insignificant at the outset, but are followed by death as a rule within six to twelve months. The disease is seen chiefly in middle or old age and is exceedingly rare in early life. Cases have been noted in infancy by Coley, Battle and Magyar (quoted by Zeisler) and at times in older children. Netherton has lately reported the disease on the lower lip of a child of two years in which an astonishing though temporary improvement followed the use of radium.

Diagnosis.—The diagnosis of sarcoma or melanoma may be suggested by the rapidity of their growth, though it must usually be made by microscopic examination.

Etiology.—Without attempting to discuss the causation of cutaneous malignancy, it may merely be said that the rôle played by local irritation is most evident in the case of melanoma. Of the different types of malignancy which have been briefly discussed, sarcoma of the generalized type is the most common in early life. The nature of Kaposi's sarcoma is still in doubt, some considering it an infectious granuloma rather than a neoplasm.

Treatment.—Treatment of primary sarcoma, occurring as a single lesion, consists in complete removal by the knife or endothermy (cutting current). This is of no avail when metastases have occurred. Treatment of multiple sarcomatosis is confined to the administration of arsenic in large doses or possibly the use of Coley's fluid. Melanoma should be excised by a wide and deep margin, followed by intensive treatment with the Roentgen rays or radium. Kaposi's sarcoma responds temporarily to the Roentgen rays.

Prognosis.—This is most serious in melanoma and in round-cell sarcoma. It is more favorable in spindle and giant-cell types, especially in fibrosarcoma. It is best in Kaposi's type. It is hopeless when metastases have occurred.

BIBLIOGRAPHY

WARTS

FOX, H. The Treatment of Flat Warts by the Internal Administration of Mercury. Am. J. Dis. Child., Chicago, 1923, 25: 55.

IRVINE, H. G. Liquid Oxygen in Dermatology. Arch. Dermat. & Syph. (in press).

WHITE, C. J. The Use of Mercury in Verrucæ Pianæ Juveniles. J. Cutan. Dis., New York, 1915, 33: 731.

WILE, U. J., and KINGERY, L. B. The Etiology of Common Warts. Tr. Am. M. Ass., 1919, p. 181.

MOLLUSCUM CONTAGIOSUM

FOX, G. H. A Clinical Study of Molluscum Contagiosum. Chic. Med. J. & Exam., 1878, 36: 466.

FRICK, W. Molluscum Contagiosum. J. Am. M. Ass., Chicago, 1899, 32: 536.

KNOWLES, F. C. Molluscum Contagiosum. J. Am. M. Ass., Chicago, 1909, 53: 671.

STELWAGON, H. W. The Question of the Contagiousness of Molluscum Contagiosum. J. Cutan. & Genito-Urin. Dis., New York, 1899, 7: 60.

WILE, U. J., and KINGERY, L. B. The Etiology of Molluscum Contagiosum. J. Cutan. Dis., New York, 1919, 37: 431.

LIPOMA

HENDERSON, E. Notes on Surgical Practice in Shanghai. Edin. Jour. 1877, 23: 118.

Jacobi, A. Congenital Lipoma. Arch. Pediat., 1884, 1:63.

Lyon, I. P. Adiposis and Lipomatosis. Arch. Int. Med., Chicago, 1910, 6:28.

Melchior. Congenitales Lipoma des Kopfes. Berl. klin. Wchnschr., 1917, 64: 737.

Ransohoff, N. S. Congenital Lipomata of the Cheek. Ann. Surg., Philadelphia, 1917, 67:711.

Strubing, P. Über adiposis dolorosa Dercum und das Edema blanc et blue (Charcot). Arch. f. Dermat. u. Syph., Wien & Leipzig, 1902, 59: 171.

White, W. H. A Case of Adiposis Dolorosa. Brit. M. J., London, 1899, 2: 1533

Xanthoma

Arzt, L. Beiträge zur Xanthom- (Xanthomatosis) Frage. Arch. f. Dermat. u. Syph., Wien & Leipzig, 1919, 126:809.

Knowles, F. C., and Fischer, H. N. Xanthoma Tuberosum Multiplex in Childhood. With Visceral and Tendon Sheath Involvement. Tr. Am. M. Ass., Sec. 1921, p. 138.

MacLeod, W. Case report. Brit. J. Dermat., London, 1913, 25:222.

Pollitzer, S., and Wile, U. J. Xanthoma Tuberosum Multiplex. J. Cutan. Dis., New York, 1912, 30: 235.

Schmidt, E. Beiträge zur Xanthomfrage. Arch. f. Dermat. u. Syph., 1922, Wien & Leipzig, 140:408.

Török, L. De la Nature des Xanthomes. Ann. de dermat. et. syph., Paris, 1893, 4: 1109.

Weidman, F. D., and Freeman, W. Xanthoma Tuberosum. Two Necropsies Disclosing Lesions of the Central Nervous System and Other Tissues. Arch. Dermat. & Syph., Chicago, 1924, 9: 149.

Winfield, J. M., and Potter, A. Xanthoma Multiplex. J. Cutan. Dis., New York, 1909, 27: 112.

Epithelioma

Roth, M. Zur Kasuistik des Carcinoma bei Jugendlichen. Ztsch. f. Krebsforsch., Jena, 1923, 20: 125.

Warthin, A. S. The Occurrence of Malignant Neoplasms in the Young. Arch. Int. Med., Chicago, 1915, 15: 444.

Sarcoma

Dubreuilh, W. Sarcomatose Cutanée Infantile. Ann. de dermat. et syph., Paris, 1911, 2: 340.

Fordyce, J. A. Multiple Pigmented Sarcoma of the Skin (Kaposi). J. Cutan. Dis., New York, 1891, 9: 1.

Kaposi, M. Hautkrankheiten, Wien & Leipzig, 1880, p. 674.

Odstrcil, J. Über einen seltenen Fall von primärem multiplem Diesonzellensarkom der Haut mit Metastasen in inneren Organen bei einem 6 Monate alten Kind. Arch. f. Dermat. u. Syph., Wien & Leipzig, 1912, 111: 869.

Ott. Sarkom nach Hundebiss. München. med. Wchnschr., 1910, 57: 103.

Shultz, O. T. Tumors of Infancy and Childhood. Abt's Pediatrics, Philadelphia, W. B. Saunders Co., 1926, Vol. VIII, p. 816.

Melanoma

Battle, W. H. A Case of Melanotic Sarcoma in a Child of Three Months. Brit. M. J., London, 1904, 2: 1372.

Coley, W. B. Primary Neoplasms of the Lymphatic Glands including Hodgkin's Disease. Ann. Surg., Philadelphia, 1916, 63: 35.

Magyar. Melanosarkom bei einem 1 Jahr alten Kind. Mitt. der Gesellsch. f. inn. Med. u. Kinderh. in Wien, 1912, 11: 198.

Netherton, E. W. Melanoma of the Lower Lip. Arch. Dermat. & Syph., Chicago, 1923, 8: 402.

CHAPTER XIX

DISEASES OF THE MUCOUS MEMBRANES

GENERAL CONSIDERATIONS

There are many diseases which are confined entirely to the skin. There are others which also involve the contiguous mucous membrane, particularly of the mouth. This is especially true of syphilis which is described in Volume XVII of this series. It is also true of lupus vulgaris, lichen planus, leprosy, pemphigus and other bullous diseases. These have already been discussed. Other diseases of the skin, such as herpes zoster, purpura and various drug eruptions, may also affect the mucous membranes.

The diagnosis of eruptions of the mucous membranes is more difficult as a rule than those of the skin. In the former the changes in color are not so apparent and the lesions are modified by moisture and by frequent secondary infection. Certain lesions of the mucous membranes are of assistance in the recognition of skin disease, such as Koplik's spots in measles, vesicles and pustules in varicella and variola, bullæ in pemphigus, the strawberry tongue and angina in scarlet fever, the bald tongue in pellagra and the delicate whitish patches in lichen planus. As a rule, however, the cutaneous lesions are more helpful in the diagnosis of mucous membrane affections than the reverse.

Of the numerous affections which are confined to the mucous membranes some are frequently seen by the dermatologist and will be briefly considered.

LINGUA GEOGRAPHICA

Geographic tongue, also known as transitory benign plaques of the tongue or wandering rash, is an uncommon disease. It occurs more frequently in children than in adults.

Symptoms.—The eruption begins as pinhead-sized grayish spots on the tongue which suggest the appearance of vesicles. They enlarge peripherally and form round or oval rings one half inch or more in diameter. The border is narrow and whitish or gray in color. The central portion is reddish, especially toward the border, and shows slight desquamation. The patches are seen chiefly on the dorsum and extend occasionally upon the under surface of the tongue. As a rule they stop at the border where they form semicircles. From the coalescence of two or more patches, curious maplike figures are formed whose contour may change from day to day. Occasionally there are two or even three concentric circles. After attaining their maximum development, they may remain stationary for a few days and then disappear, the entire process lasting a few days to a week or more. Subjective symptoms are absent, as a rule, the patients being frequently unaware of the eruption. At times there is some burning or itching. From successive outbreaks of new lesions the process may be continued for years but eventually disappears.

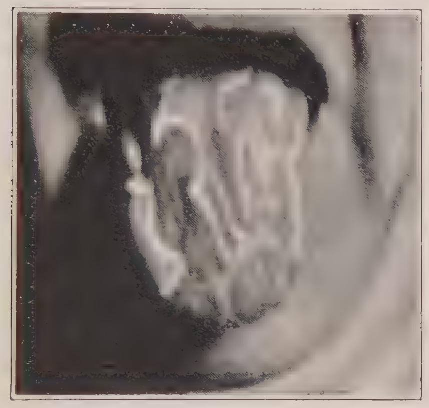

Fig. 111.—Lingua Geographica.

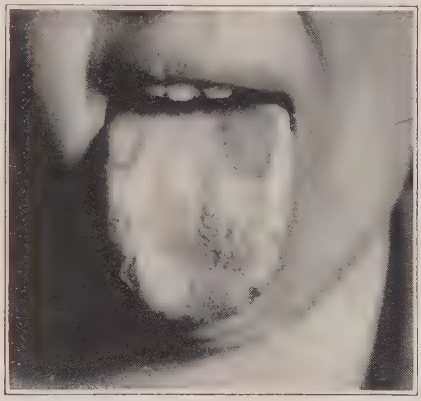

Fig. 112.—Lingua Geographica.

Etiology.—The disease is seen most often in infants and young children of both sexes and at times affects several members of a family. Its cause is unknown. It is not communicable and has no relationship to syphilis. The affected children are apt to be delicate or may suffer from gastro-intestinal disturbances.

Diagnosis.—This is easily made from the history of constantly recurring lesions on the dorsum of the tongue which are superficial, circinate or maplike in configuration and are not accompanied, as a rule, by subjective symptoms.

Treatment.—This is usually unsatisfactory, though improvement has been obtained by correcting gastro-intestinal disturbances and by administration of arsenic and bland mouth washes. I have not had the opportunity of treating any children suffering from this disease. In several cases in adults I have had astonishingly good results with the Roentgen rays. As far as I am aware, Ormsby and I were the first to use radiotherapy in this disease, Ormsby using radium and I the Roentgen rays. In my adult cases there were somewhat annoying subjective symptoms.

I do not think that radiotherapy or administration of arsenic would be warranted in children unless subjective symptoms were marked.

Prognosis.—This is good in children, the disease gradually tending to disappear spontaneously.

FORDYCE'S DISEASE

This affection was first described by Fordyce, in 1896. It occurs chiefly in male adults, though in its milder forms especially it is not uncommon in children. It appears as tiny whitish or yellowish milium-like bodies, which are discrete though often closely aggregated. The lesions are slightly elevated or on a level with the surrounding tissues. They are seen on the vermillion border of the lips and on the mucosa of the cheeks along the interdental cleft. The yellowish color is more evident on the lips, while the lesions in the mouth are more apt to be whitish. They cause no subjective symptoms and are usually discovered accidentally. They persist indefinitely and do no harm, except for the disfigurement which exists in well-marked cases.

Etiology.—From the extensive investigation by Margolies and Weidman of 248 persons, comprising groups of all ages, Fordyce's disease was found to be present in a mild form in 15 per cent of children between the ages of two and nine years and in 25 per cent between the ages of eleven and fourteen. It was not seen in infants. Cases in infants, however, are recorded by Montgomery and Hay and by Audry. Fordyce's disease is generally considered to be due to the presence of aberrant sebaceous glands which may or may not have their origin during fetal life. It would, therefore, be more properly called a congenital anomaly than a disease.

Treatment.—This is rarely indicated and when attempted does not produce permanent results.

BLACK TONGUE

Black tongue (lingua nigra), also known as hairy tongue, is a rare disease which may occur at any age, though it is seen chiefly in adults.

Symptoms.—The disease consists, in the majority of cases, of a single colored patch, situated on the dorsum of the tongue immediately in front of the circumvallate papillæ. It may be oval or more often triangular in shape and is most markedly discolored in the central portion. The color is usually some shade of brownish black though yellowish, greenish or bluish tints have been observed.

The essential changes consist in elongation of the filiform papillæ associated with discoloration. The elongation of the papillæ is seldom marked in juvenile cases, in which the process may consist of a slight thickening and pigmentation of their tips. In well-marked cases, the papillæ are sufficiently hypertrophied to give the appearance of hairs, from which the name "hairy tongue" is derived. The appearance in such cases has been likened to a field of grain after a storm or a dog's fur moistened with water. There are no subjective symptoms, as a rule. Occasionally there is a feeling of dryness. There may be some salivation and a mildly disagreeable odor of the mouth. In an adult case of mine, the filiform spines were long enough to cause a tickling sensation when the tongue was in contact with the palate. The disease lasts months or years but eventually disappears. Recurrences are not uncommon.

Etiology.—Black tongue is possibly less rare than reported cases would indicate, eighty-four cases having been collected by Blegvad, in 1908.

The disease is neither contagious nor inoculable and is not thought to be parasitic in origin. Its cause is not known. According to Prinz, who has experimentally produced the disease (in a temporary form), there is a constitutional condition which predisposes the surface of the tongue to irritation by specific substances. The black color, he thinks, is derived from decomposition of hemoglobin. Darier says it is due to a smoky tinge of the horny substance, as in black ichthyosis.

Diagnosis.—The disease should not be confused with patches of pigmentation occurring in Addison's disease, diabetes and cachectic conditions, nor with that due to various chemicals, drugs and food.

Treatment.—Nothing is gained by curetting the patch, as recurrence promptly follows. According to Prinz, thorough swabbing with hydrogen peroxid (3 per cent) followed by warm physiologic salt solution gives prompt relief (after several treatments). In more severe cases, a 10 per cent solution of salicylic acid in equal parts of alcohol and glycerin is recommended. It is to be followed by the above-mentioned peroxid and salt solution.

Prognosis.—This is favorable as the disease disappears spontaneously though it may recur.

FURROWED TONGUE

Furrowed, grooved or scrotal tongue are terms applied to a congenital abnormality which does not usually become well marked until the age of puberty or later. All grades of severity are observed. In the severe types, the tongue is increased in size and there are numerous furrows and corresponding elevations which are longitudinal, transverse or irregularly curved. The severe form may suggest the appearance of the convolutions of the brain. The surface of the tongue is bright red and free from coating. There are no subjective symptoms and the only annoying feature is the tendency for particles of food to collect in the furrows. The affection is congenital and often familial and cannot be removed. In later years it tends to become more conspicuous. It requires no treatment except cleansing and the use of a bland mouth wash.

HERPETIC STOMATITIS

Symptoms.—Stomatitis or inflammation of the mouth may be catarrhal, herpetic, ulcerative or gangrenous. Herpetic stomatitis, often spoken of as aphthous stomatitis, or canker sores, is a common and annoying but harmless affection. The lesions begin as vesicles, though when seen by the physician this has usually ruptured and left a small round or oval erosion or superficial ulcer which is often surrounded by a reddish halo. There may be one or many such lesions. The favorite site is the border of the tongue or the mucous surface of the lips. Pain and tenderness are always present and may interfere with eating or drinking. There may be salivation and considerable edema of the tongue or other affected parts. In severe cases, the breath is heavy or foul and there may be swelling of the lymphatic glands in the anterior triangle of the neck. The course may be brief and last but a few days. In severe cases it may be more persistent and show a tendency to recur.

Etiology.—The affection is thought to be an oral herpes analogous to ordinary herpes simplex. It may occur in healthy children and be of mild type, but is usually seen in undernourished infants or children, often in association with infectious diseases. In such cases, the process may be severe and involve a large area of the mouth.

Diagnosis.—Herpetic stomatitis is to be differentiated from the mucous patches of syphilis. In the latter affection the lesions are not as well defined, show no reddish halo and cause no pain or tenderness. *Spirochaeta pallida* is readily found on dark field examination. An ulcerative stomatitis due to metallic poisoning by mercury, lead or bismuth is a deeper process which is situated chiefly at the junction of the teeth and gums.

Treatment.—This consists in cleansing the mouth by bland washes and the use of local astringents. Equal parts of burnt alum and bismuth may be used as a powder or a solution of 2 per cent of alum in water may serve as a mouth wash. More persistent lesions are to be touched with silver nitrate or copper sulphate stick.

Prognosis.—This is invariably good.

THRUSH

Thrush is a disease almost entirely confined to nursing infants.

Symptoms.—The eruption affects the tongue and buccal mucosa most frequently though in severe cases the entire mouth, throat and even esophagus may be involved. It occurs as varying sized milky white patches which are fairly adherent to the underlying mucosa. Forcible detachment causes bleeding which results in brownish discoloration. In rare instances, the skin of the face and anogenital region may also be involved, when erythematous patches and vesicopustules containing fungus may be present. A case of cutaneous involvement was recently reported by Schamberg.

Etiology.—Thrush is caused by an air-borne yeast, the *Oïdium* (*Monilia*) *albicans* which acts usually through contamination of nipples or feeding utensils. The disease occurs chiefly in undernourished infants, especially those who are bottle fed. It may appear in epidemic form in foundling asylums or other similar institutions.

Treatment.—Prophylactic treatment consists mainly in cleanliness. The disease tends to disappear spontaneously when the nutrition is improved. The patches should not be mechanically removed. Treatment with a saturated solution of boric acid or 1 per cent gentian-violet is highly recommended.

PERLÈCHE

"La perlèche," as it is called by French writers, is an infectious disease of the lips, almost entirely confined to children. It was so named by Lemæstre, who first described it in 1886. It has no Latin or English synonyms.

Symptoms.—The disease begins at the commissures where it is chiefly confined. It may extend for a certain distance upon the vermillion border and mucous surface of the lips and is usually bilateral. At the outset the affected areas have a whitish, mother-of-pearl appearance, and later become macerated and slightly thickened. At the commissures, there may be some crusting and superficial cracks which seldom tend to bleed. There is never any ulceration. Subjective symptoms consist of burning and a feeling of dryness, causing the child to frequently lick the affected parts. The eruption lasts several weeks or one or two months and disappears spontaneously. Relapses or recurrences are frequent. Complications, such as lymphangitis or adenitis, do not occur.

Etiology.—Perlèche has been seen chiefly in Europe and was supposed to be rare in this country, until the reports of Lane and of Smith appeared. Lane found it common in New Haven and thinks that it exists in other parts of the country, especially in cities with large foreign population. It has been observed in epidemics among school or institutional children. The cause of the affection is a streptococcus.

Diagnosis.—The most important disease to be considered is syphilis. Mucous patches at the corner of the mouth may be impossible to differentiate from the clinical appearance alone. The history of contagion or epidemics in perlèche and its location at the commissures are helpful, but a dark field examination or a Wassermann test may be necessary to settle the diagnosis. Fissured eczema of the commissural region is more apt to be unilateral and to extend further upon the surrounding mucous or cutaneous surfaces. The fissures are deeper, more likely to bleed and are more resistant to treatment. Furthermore, the pearly, whitish appearance of perlèche is not present.

Treatment.—Prophylaxis consists in measures to prevent infection by kissing and indiscriminate use of drinking cups, towels, pencils, etc. The disease responds readily to treatment. A simple plan is to paint the affected parts with a solution of silver nitrate (5 to 10 per cent) every day or two and to apply ordinary soothing ointments.

BIBLIOGRAPHY

LINGUA GEOGRAPHICA

Fox, H. The Roentgen Rays in the Treatment of Skin Diseases. Arch. Dermat. & Syph., Chicago, 1924, 9: 13.

FORDYCE'S DISEASE

AUDRY, C. Ueber eine Veränderung der Lippen- und Mundschleimhaut bestehend in der Entwicklung atropischer Talgdrüsen. Monatsh. f. prak. Dermat., Hamburg & Leipzig, 1899, 29: 101.

MARGOLIES, A., and WEIDMAN, F. Statistical and Histologic Studies of Fordyce's Disease. Arch. Dermat. & Syph., Chicago, 1921, 3: 723.

MONTGOMERY, D. W., and HAY. Sebaceous Glands in the Mucous Membranes of the Mouth. Tr. Ass. Am. Anat., 1897, p. 176.

BLACK TONGUE

BLEGVAD. Sort Tunge Lingua Villosa Nigra. Saetryk af Bibliotek f. Larger, 8 R., 1908, 9: 187.

PRINZ, H. Black Tongue. Dental Cosmos, Philadelphia, 1923, 65: 690.

THRUSH

SCHAMBERG, J. F. Memorandum on Cutaneous Thrush. Arch. Pediat., 1915, 32:617.

PERLÈCHE

LANE, J. E. Perlèche. Tr. Am. M. Ass., 1917, p. 137.
SMITH, A. L. Perlèche; Its Bacteriology, Symptoms and Treatment in Two Hundred and Twenty-three Cases Arch. Pediat., 1917, 34:274.

CHAPTER XX

FORMULARY

SOOTHING REMEDIES

Lotions.—*Calamine Lotion*

℞

Calamin. præp.	4 gm.
Zinc. oxid.	8 gm.
Liq. calc.	120 c.c.

This preparation, often known as "pink lotion," is preferably made up with lime water rather than a mixture of half lime water and half rose water. Pure lime water is one of the most soothing applications for an inflamed skin and dilution with rose water lessens its favorable effect. It is also advisable to omit glycerin and phenol, both of which are often used in this lotion. If it is desired to change the color of the above lotion, tincture of caramel may be added to make a "brown lotion" as follows:

℞

Tr. caram.	4 c.c.
Calamin. præp.	4 gm.
Zinc. oxid.	8 gm.
Liq. calc.	120 c.c.

If either of these lotions is considered to be too drying, the following preparation containing tragacanth may be used.

Calamine Liniment (*Pusey*)

℞

Phenol. liq.	1.0 c.c.
Ol. bergam.	1.3 c.c.
Pulv. trag.	5.0 gm.
Zinc. oxid.	
Calamin. præp. āā	30.0 gm.
Ol. oliv.	150 c.c.
Aq. dest. q.s. ad	500 c.c.

Baths.—One of the simplest and most soothing baths consists of starch 1 to 2 pounds in an ordinary tub of water. Laundry starch is suitable for the purpose.

Powders

℞

Acid. bor.	10 gm.
Zinc. oxid.	40 gm.
Talc. purif.	50 gm.

℞

Camph.	2 gm.
Zinc. oxid.	4 gm.
Amyl.	24 gm.

Ointments.—*Ointment of Boric Acid*

℞

Acid. bor.	100 gm.
Paraff.	50 gm.
Petrolat. alb.	850 gm.

Ointment of Zinc Oxid

℞

Zinc. oxid.	20 gm.
Paraff.	15 gm.
Petrolat. alb.	65 gm.

Pastes.—*Lassar's Paste*

℞

Acid salicyl.	2 gm.
Zinc. oxid.	24 gm.
Amyl.	24 gm.
Petrolat. alb.	50 gm.

This may be modified to 8-8-30 of zinc oxid, starch and white petrolatum respectively.

Coal Tar (Modified from C. J. White's Formula)

℞

Pix carbon.	2 gm.
Zinc. oxid.	2 gm.
Amyl.	20 gm.
Petrolat. alb.	12 gm.
Cer. alb.	1.75 gm.

The tar and zinc are first mixed. The vaselin is then melted and thoroughly incorporated with the starch, after which the two mixtures are united.

ANTIPRURITICS

The Roentgen ray is valuable as an antipruritic in addition to its many other qualities. The preceding remedies, however, are antipruritic as well as soothing and protective. A useful salve is the following:

℞

Menthol.	2 gm.
Ol. oliv.	20 c.c.
Adeps lan. q.s. ad	100 gm.

The three varieties of wood tar described below are valuable for their antipruritic as well as stimulating action.

STIMULATING REMEDIES

For Acne and Folliculitis.—*Lotio Alba.*

℞

Zinc sulph.	4 gm.
Pot. sulphurat.	4 gm.
Aq. ros. q.s. ad	120 c.c.

This lotion may be increased in strength by doubling the first two ingredients or, further, by adding an equal amount of precipitated sulphur.

The three varieties of wood tar—oleum cadinum, oleum rusci, and pix pini—are stimulating and are not to be used for acutely inflamed skin conditions. They are useful in dry, itchy and chronic skin diseases. The oil of cade is the most active.

℞

Ol. cadin.	3 c.c.
Ung. zinc. oxid.	30 gm.

℞

Ol. cadin.	3 c.c.
Petrolat. alb.	30 gm.

When a powerful stimulant is needed, nothing is more useful than chrysarobin, especially in ointment form, though the staining properties and liability of causing conjunctivitis must be remembered.

℞

Chrysarob.	1 to 6 gm.
Petrolat. alb.	
Adeps lan. āā	15 gm.

The strong concentrations of this drug are only to be used in older children and on parts like the hands, feet, and extensor surfaces where the skin is thick. When the greatest possible action from chrysarobin is desired, it is first applied to the skin and covered by oiled silk or gutta percha. For small areas of greatly thickened skin, as in psoriasis of older children, the following may be used.

Dreuw's Ointment (Modified)

℞

Acid. salicyl.	3 gm.
Chrysarob.	6 gm.
Ol. rusc.	6 cc.
Petrolat. alb. q.s. ad	30 gm.

ANTISEPTICS

White Precipitate Ointment:

Ung. hydrarg. ammon. . . . 5 to 10 per cent

Alibour water, highly recommended by Darier, is compounded of the following:

℞

Cupr. sulph.	2 gm.
Zinci. sulph.	7 gm.
Aq. camph.	300 c.c.

Sig. Tablespoonful to glass of water for external use.

PARASITICIDAL REMEDIES

For Dermatophytosis (*Whitfield's Ointment*)

℞

Acid. salicyl.	1 gm.
Acid. benz.	2 gm.
Petrolat. alb.	30 gm.

For Seborrheic Eczema

℞

Acid. salicyl.	1 gm.
Sulphur. præc.	2 gm.
Petrolat. alb.	30 gm.

For Scabies in Children (*Pusey*)

℞

Sulphur. præc.	
Bals. peruv.	
Cret. præp.	
Sapo. moll. āā	4 gm.
Petrolat. alb. q.s. ad	100 gm.

For Pediculosis of Scalp

℞

Bals. peruv.	3 gm.
Alcohol	30 c.c.

For Tinea Capitis

℞

Iodin crystals	3 gm.
Adeps. lan.	30 gm.

MISCELLANEOUS

For Alopecia Areata

Phenol (pure), for small patches

or

Liquor ammoniæ fortis

or

℞

Acidi acet. glac.	1 c.c.
Chloral. hydr.	4 gm.
Etheris	30 c.c.

For Hyperidrosis

℞

Alum. chlor.	25 gm.
Aq. dest.	100 c.c.

For Dandruff

℞

Resorcin	8	gm.
Hydrarg. chlor. corr.	0.12	gm.
Ol. ricin.	8	c.c.
Sp. odorat.	24	c.c.
Alcohol 50 per cent q.s. ad	240	cc.

Resorcin should not be used for blond hair, as it stains the hair. It should be substituted by euresol. The amount of oleum ricini depends on the dryness of the scalp. If the scalp is oily, it should be omitted. The percentage of alcohol may also be increased when the scalp is very oily.

BLEACHING REMEDIES

For Freckles

Peroxid cream

℞

Liq. hydrog. diox.	15 c.c.
Hydrarg. chlor. corr.	0.50 gm.
Zinc. oxid.	1 gm.
Adeps lan.	5 gm.
Petrolat. alb.	10 gm.

Hebra's salve

℞

Hydrarg. chlor. mit.	
Bism. subnit. āā	6 gm.
Petrolat. alb.	90 gm.

INDEX

Abnormalities, congenital, adenoma sebaceum, 22
— —epidermolysis bullosa, 18
— —ichthyosis, 13
— —keratosis palmaris et plantaris, 17
— —multiple benign cystic epithelioma, 27
— —neurofibromatosis, 25
— —nevi, 1
— —Recklinghausen's disease, 25
— —syringocystoma, 28
— —urticaria pigmentosa, 28
— —xeroderma pigmentosum, 19
Abscess, Munro's, psoriasis and, 128
Abscesses, multiple, of infants, 219
—tuberculous "cold," 233
— —multiple abscesses of infants differentiated from, 219
Acanthosis, blastomycosis showing, 199
—eczema showing, 117
Acanthosis nigricans, diagnosis of, 312
—etiology of, 312
—hyperpigmentation in, 285
—incidence of, 311
—keratosis follicularis differentiated from, 310
—prognosis of, 312
—symptoms of, 312
—treatment of, 312
Acarodermatitis urticarioides, 159
Acarus folliculorum, 168
Acarus scabiei, 162, 165
Achorion schœnleinii, 192
Acids, dermatitis caused by, 42
Acne, papular, granulosis rubra nasi differentiated from, 278
Acne bacillus of Unna, 281
Acne neonatorium, 280
Acne vulgaris, diagnosis of, 281
—etiology of, 280
—pathology of, 280
Acne vulgaris, prognosis of, 282
—symptoms of, 280
—treatment of, 281
Aconite, dermatitis caused by, 48
Acquired syphilis, lupus vulgaris differentiated from, 228
Actinomycosis, diagnosis of, 197
—etiology of, 197
—pathology of, 197
—prognosis of, 197
—symptoms of, 196
—treatment of, 197
Active hyperemia, 57
Acuminate wart, 319
Acute circumscribed edema, 76
Adenoma sebaceum, diagnosis of, 25
—etiology of, 23
—pathology of, 23
—prognosis of, 25
—symptoms of, 22
—treatment of, 25
Agamanematodum migrans, 169
Albinismus, 262, 288
Alibour water, 349
Allergy, eczema and, 117
—urticaria and, 74
Alopecia areata, diagnosis of, 260
—etiology of, 259
—nail changes associated with, 269
—prognosis of, 261
—symptoms of, 257
—treatment of, 261, 350
Alopecia congenita, etiology of, 252
—symptoms of, 252
—treatment of, 252
Alopecia symptomatica, 255
Alopecia totalis, 257
Angiokeratoma, diagnosis of, 297
—etiology of, 297
—pathology of, 297
—symptoms of, 297

Angiokeratoma, telangiectasia in, 295
— treatment of, 297
Angioma, cavernous, 4
Angioma serpiginosum, diagnosis of, 298
— etiology of, 298
— pathology of, 298
— prognosis of, 298
— symptoms of, 297
— telangiectasia in, 295
— treatment of, 298
Angioneurotic edema, diagnosis of, 77
— etiology of, 77
— pathology of, 77
— prognosis of, 78
— symptoms of, 77
— synonyms of, 76
— treatment of, 78
Anidrosis, 276
Animal parasites, skin diseases caused by, general considerations of, 151
Ankylostoma duodenale, 171
Antipruritic salve, formula of, 348
Antipyrin, dermatitis caused by, 48
Antiscorbutic vitamin C, infantile scurvy due to deficiency in, 71
Anus, tuberculosis ulcerosa about, 232
Argyria, hyperpigmentation and, 286
Arsenic, dermatitis caused by, 48, 52
Arsphenamin, dermatitis caused by, 48
Artificial dermatitis, classification of, 33
Atheroma, 282
Atrophia pilorum propria, types of, 253
Atropin, dermatitis caused by, 48
Auspitz's sign, psoriasis and, 124

Bacilli, skin diseases due to, 224
Bacillus fœtidus, 276
Ballooning degeneration, herpes zoster and, 92
Baths, skin, 347
Bazin's disease, diagnosis of, 236
— erythema nodosum differentiated from, 64
— etiology of, 236
— pathology of, 236
— symptoms of, 235
Bazin's disease, treatment of, 236
Beau's lines, 267
Bedbugs, 157
Bed-sores, etiology of, 33
Belladonna, dermatitis caused by, 48
Benign cystic epitheliomata, multiple, 27
Biological substances, dermatitis caused by, 47
Birthmarks, 1
— maternal impressions and, 10
Biting the nails, 266
Black flies, 160
Blackhead, 279
Black tongue, diagnosis of, 341
— etiology of, 341
— prognosis of, 341
— symptoms of, 340
— treatment of, 341
Blastomycosis, diagnosis of, 199
— etiology of, 198
— pathology of, 198
— prognosis of, 199
— symptoms of, 198
— treatment of, 199
Bleaching remedies, 351
Body-lice, 156
Boils, etiology of, 217
— pathology of, 217
— symptoms of, 217
— treatment of, 218
Boric acid ointment, formula of, 347
Botriomycosis hominis, 220
Bottle bacillus of Malassez, 136
Brittle hair, 254
Bromidrosis, 275
Bromids, dermatitis caused by, 48
Bromoderma, blastomycosis differentiated from, 199
— dermatitis vegetans differentiated from, 220
— symptoms of, 48
Brown-tailed moth, 161
Burns, treatment of, 36

Calamine liniment, formula of, 346
Calamine lotion, formula of, 346

Callositas, 324
Callus, etiology of, 33
Canities, etiology of, 263
— incidence of, 262
Carbolic acid, dermatitis caused by, 42
Cavernous angioma, 4
Cellulitis, crab, 215
Cerebrospinal meningitis, herpes simplex and, 86
Chemical agents, dermatitis caused by, 33, 41, 47
Chicken lice, 159
Chickenpox, papular urticaria differentiated from, 80
Chigger, 168
Chilblain, diagnosis of, 38
— etiology of, 37
— prognosis of, 38
— symptoms of, 37
— treatment of, 38
Childhood, eczema in, 115
Chironomidæ, 160
Chloasma, symptoms and treatment of, 288
— vitiligo differentiated from, 293
Chloral, dermatitis caused by, 48
Chronic pemphigus, 98
Chromidrosis, 276
Chrysarobin, dermatitis caused by, 42
Cicatrix, etiology of, 317
— pathology of, 317
— symptoms of, 317
— treatment of, 318
Cimex lectularius, 157
Cingulum, 87
Circulatory disturbances of skin, 56
Circumscribed edema, acute, 76
Clavus, etiology of, 33
— treatment of, 324
Coal tar paste, formula of, 347
Cocci, pyogenic, skin diseases due to, 203
Cold, dermatitis caused by, 33, 36
Cold abscesses, tuberculous, 233
— — multiple abscesses of infants differentiated from, 219
Cold sore, 84
Comedo, 279
Condyloma acuminatum, 319
Congenital abnormalities, adenoma sebaceum, 22
— epidermolysis bullosa, 18
— ichthyosis, 13
— keratosis palmaris et plantaris, 17
— multiple benign cystic epithelioma, 27
— neurofibromatosis, 25
— nevi, 1
— Recklinghausen's disease, 25
— syringocystoma, 28
— urticaria pigmentosa, 28
— xeroderma pigmentosum, 19
Congenital alopecia, 252
Congenital pachyonychia, 266
Congenital syphilis, dermatitis gangrenosa infantum differentiated from, 222
— eczema seborrheicum differentiated from, 137
— pemphigus neonatorum differentiated from, 213
— pemphigus vulgaris differentiated from bullous lesions of, 101
Contagious impetigo, 204
Corn, etiology of, 33
— treatment of, 324
Crab cellulitis, 215
Creeping eruption, 169
Cryocautery, 12
Ctenocephalus canus and *felis,* 158
Cutis marmorata, passive hyperemia and, 56
Cystic epitheliomata, multiple benign, 27
Cysticercus cellulosæ cutis, 170
Cysts, echinococcus, 170
— sebaceous, 282

Dandruff, synonyms of, 134
— treatment of, 135, 350
Darier's disease, 309
Decubitus, etiology of, 33
Defluvium capillitium, 256
Demodex folliculorum, 168
Dentition, eczema and, 116

Depigmentation, types of, 288
Dermanyssus gallinæ, 159
Dermatitis, artificial, classification of, 33
— uncinarial, 171
Dermatitis actinica, 36
Dermatitis calorica, 36
Dermatitis exfoliativa neonatorum, diagnosis of, 308
— etiology of, 308
— prognosis of, 309
— symptoms of, 307
— treatment of, 308
Dermatitis factitia, 54
Dermatitis gangrenosa infantum, diagnosis of, 222
— etiology of, 222
— pathology of, 222
— prognosis of, 223
— symptoms of, 222
— treatment of, 222
Dermatitis herpetiformis, diagnosis of, 105
— erythema multiforme differentiated from, 62
— etiology of, 104
— history of, 102
— hydroa vacciniforme differentiated from, 97
— nails affected in, 269
— pathology of, 104
— prognosis of, 106
— symptoms of, 102
— treatment of, 105
— urticaria differentiated from, 75
Dermatitis medicamentosa, diagnosis of, 47
— etiology of, 47
— symptoms of, 47
— treatment of, 48
Dermatitis traumatica, diagnosis of, 34, 35
— symptoms of, 34, 35
— treatment of, 34, 36
Dermatitis vegetans, 220
Dermatitis venanata, etiology of, 41
Dermatophytosis, treatment of, 349
Dermatothlasis, 256
Dermographism, urticaria and, 29, 74, 75
Dhobie itch, 194
Diabetes, eczema and, 117
Diphtheria, skin, diagnosis of, 249
— — erythema scarlatiniforme and, 59
— — etiology of, 248
— — prognosis of, 249
— — symptoms of, 248
— — treatment of, 249
Disseminated lupus, multiple, measles followed by, 226
Dreuw's ointment, formula of, 349
Dyes, dermatitis caused by, 42
Dysidrosis, 93, 179

Echinococcus cysts, 170
Ecthyma, diagnosis of, 210
— etiology of, 210
— impetigo contagiosa differentiated from, 207
— symptoms of, 210
— treatment of, 210
Ectropion, pityriasis rubra pilaris and, 146
— xeroderma pigmentosum and, 20
Eczema, alopecia due to, 256
— childhood and, 115
— dermatitis herpetiformis differentiated from, 105
— diagnosis of, 117
— eczema seborrheicum differentiated from, 136
— erysipelas differentiated from, 215
— erythema multiforme differentiated from, 62
— etiology of, 115
— general considerations of, 108
— impetigo contagiosa differentiated from, 207
— infancy and, 113
— lichenification differentiated from, 141
— lupus erythematosus differentiated from, 242
— lupus vulgaris differentiated from, 228

Eczema, nail changes due to, 268
— papular urticaria differentiated from, 80
— pathology of, 117
— perlèche differentiated from, 344
— prognosis of, 122
— prurigo differentiated from, 82
— scabies differentiated from, 166
— seborrheic, psoriasis differentiated from, 128
— — treatment of, 349
— symptoms of, 109
— treatment of, 118
— types of, 112
Eczema marginatum, 194
Eczema seborrheicum, diagnosis of, 136
— etiology of, 136
— pityriasis rosea differentiated from, 140
— prognosis of, 137
— symptoms of, 135
— treatment of, 137
Eczematous pores, 117
Edema, acute circumscribed, 76
— angioneurotic, diagnosis of, 77
— — etiology of, 77
— — pathology of, 77
— — prognosis of, 78
— — symptoms of, 77
— — synonyms of, 76
— — treatment of, 78
— hereditary, of legs, 309
Edema neonatorum, etiology of, 307
— pathology of, 307
— scleroderma differentiated from, 305
— sclerema neonatorum differentiated from, 306
— symptoms of, 307
Edematous scleroderma, 302
Electricity, dermatitis caused by, 33
Endocarditis, erythema nodosum following, 64
Eosinophilia, dermatitis herpetiformis and, 104
Epidermolysis bullosa, etiology of, 19
— nails affected by, 269
— pathology of, 19
Epidermolysis bullosa, pemphigus neonatorum differentiated from, 213
— pemphigus vulgaris differentiated from, 101
— symptoms of, 18
— treatment of, 19
Epidermophyton, pompholyx and, 93
Epidermophyton inguinale, 194
Epithelioma, diagnosis of, 334
— etiology of, 334
— incidence of, 331
— multiple benign cystic, 27
— treatment of, 335
Eponychium, 266
Erysipelas, course of, 214
— diagnosis of, 215
— eczema differentiated from, 118
— etiology of, 215
— pathology of, 215
— prognosis of, 215
— Ritter's disease differentiated from, 308
— symptoms of, 214
— treatment of, 215
Erysipeloid, etiology of, 216
— symptoms of, 216
— synonyms for, 215
— treatment of, 216
Erythema, eczema differentiated from, 117
— napkin, 35
— toxic, 58
Erythema ab igne, 37
— passive hyperemia and, 57
Erythema elevatum diutinum, 240
Erythema gluteale, diagnosis of, 35
— etiology of, 35
— symptoms of, 35
— treatment of, 36
Erythema hyperæmicum, diagnosis of, 58
— symptoms of, 57
— treatment of, 58
Erythema induratum, diagnosis of, 236
— erythema nodosum differentiated from, 64
— etiology of, 236
— pathology of, 236

Erythema induratum, symptoms of, 235
— treatment of, 236
Erythema intertrigo, diagnosis of, 34
— symptoms of, 34
— treatment of, 34
Erythema iris, 60
Erythema multiforme, dermatitis herpetiformis differentiated from, 105
— diagnosis of, 62
— erythema nodosum and, 63
— etiology of, 62
— hydroa vacciniforme differentiated from, 97
— papular urticaria differentiated from, 80
— pathology of, 62
— pemphigus neonatorum differentiated from, 213
— pemphigus vulgaris differentiated from, 101
— prognosis of, 63
— symptoms of, 59
— treatment of, 63
— urticaria differentiated from, 75
Erythema nodosum, diagnosis of, 64
— erythema induratum differentiated from, 236
— etiology of, 64
— pathology of, 64
— prognosis of, 65
— symptoms of, 63
— treatment of, 64
Erythema pernio, diagnosis of, 38
— etiology of, 37
— prognosis of, 38
— symptoms of, 37
— treatment of, 38
Erythema scarlatiniforme, diagnosis of, 59
— etiology of, 59
— symptoms of, 58
— treatment of, 59
Erythema serpens, 215
Erythema solare, 38
Érythème induré des scrofuleux, 235
Erythrodermie congenitale ichthyosiforme, 17
Exfoliative dermatitis, nails affected in, 269
Exophthalmic goiter, telangiectasia in, 295

Factitious urticaria, 74
— urticaria pigmentosa and, 29
Favus, alopecia due to, 256
— diagnosis of, 192
— etiology of, 191
— pathology of, 192
— prognosis of 194
— psoriasis differentiated from, 129
— symptoms of, 188
— treatment of, 193
Feet; ringworm of, 178
Feigned skin eruptions, 54
Fever blister, 84
Fleas, 157
Follicular impetigo, etiology of, 216
— pathology of, 216
— symptoms of, 216
— treatment of, 217
Fordyce's disease, etiology of, 340
— symptoms of, 340
— treatment of, 340
Formulary of preparations for treatment of skin diseases, 346
Fragilitas crinium, 254
Freckles, symptoms of, 287
— treatment of, 288, 351
Friction, dermatitis caused by, 33
Frost-bite, Raynaud's disease differentiated from, 300
— treatment of, 37
Fungi, skin diseases due to, 173
Furrowed tongue, 341
Furunculosis, alopecia following, 256
— etiology of, 217
— pathology of, 217
— prognosis of, 219
— symptoms of, 217
— treatment of, 217

Gangrene, symmetrical, 299
Generalized scleroderma, 302

Geographic tongue, 338
German measles, erythema multiforme differentiated from, 62
Giant urticaria, 76
Glabrous skin, ringworm of, 177
— — diagnosis of, 182
— — treatment of, 188
Gluteal erythema, 35
Goiter, exophthalmic, telangiectosia in, 295
Grain itch, 159
Granuloma, infectious, 196
Granuloma annulare, diagnosis of, 240
— etiology of, 240
— prognosis of, 241
— symptoms of, 240
— treatment of, 240
Granuloma pyogenicum, diagnosis of, 221
— etiology of, 221
— pathology of, 221
— prognosis of, 222
— symptoms of, 220
— treatment of, 221
Granulosis rubra nasi, diagnosis of, 278
— etiology of, 278
— pathology of, 278
— prognosis of, 279
— symptoms of, 278
— treatment of, 279
Gray hair, etiology of, 263
— incidence of, 262
Gray patch ringworm, 174
Ground itch, 171
Grouped comedones, 279
Gummata, syphilitic, erythema induratum differentiated from, 236
— — erythema nodosum differentiated from, 64
— — multiple abscesses of infancy differentiated from, 219

Hair, diseases of, alopecia areata, 257
— — alopecia congenita, 252
— — alopecia symptomatica, 255
— — atrophia pilorum propria, 253
— — canities, 262
Hair, diseases of, fragilitas crinium, 254
— — hypertrichosis, 251
— — monilethrix, 254
— — ringed hair, 263
— — trichorrhexis nodosa, 254
Hands, ringworm of, 178
Harlequin fetus, 16
Harvest mite, 168
Head-louse, 155
Heat, dermatitis caused by, 33, 36
Hebra's salve, 351
Heliotherapy, psoriasis and, 133
Hemangioma, 4
Hematidrosis, 276
Hematoporphyrin, hydroa vacciniforme and, 97
Hemophilia, purpura hæmorrhagica differentiated from, 70
Hemorrhagic telangiectasia, hereditary, 296
Hemosiderin, hyperpigmentation due to, 284, 285
Henoch's purpura, symptoms of, 68
Hereditary edema of the legs, 309
Hereditary hemorrhagic telangiectasia, 296
Heredity, angioneurotic edema and, 77
— hyperpigmentation and, 284
— nevi and, 10
— psoriasis and, 127
Heroin, dermatitis caused by, 48, 52
Herpes, forms of, 84
Herpes iris, 60
Herpes progenitalis, 85
Herpes simplex, diagnosis of, 87
— etiology of, 86
— herpes zoster differentiated from, 92
— impetigo contagiosa differentiated from, 207
— pathology of, 86
— prognosis of, 87
— symptoms of, 84
— treatment of, 87
Herpes zoster, arsenic causing, 52
— derivation of the term, 87
— diagnosis of, 92

Herpes simplex, etiology of, 91
— herpes simplex differentiated from, 87
— pathology of, 91
— prognosis of, 93
— symptoms of, 88
— treatment of, 92
Herpetic fever, 85
Herpetic stomatitis, diagnosis of, 342
— etiology of, 342
— prognosis of, 343
— symptoms of, 342
— treatment of, 342
Hippocratic nail, 267
Hives, course of, 74
— diagnosis of, 75
— etiology of, 74
— pathology of, 74
— prognosis of, 76
— symptoms of, 73
— treatment of, 76
Hodgkin's disease, prurigo and, 82
Homines pilosi, 252
Hookworm, 171
Hydroa puerorum, 97
Hydroa vacciniforme, diagnosis of, 97
— etiology of, 96
— pathology of, 96
— prognosis of, 97
— symptoms of, 94
— treatment of, 97
Hydroadenitis destruens suppurativa, 217
Hymenoptera, 161
Hyperemia, active, 57
— passive, 56
Hyperidrosis, etiology of, 275
— pathology of, 275
— symptoms of, 274
— treatment of, 275, 350
Hyperpigmentation, classification of, 284
Hyperthyroidism, eczema and, 117
Hypertrichosis, etiology of, 252
— types of, 251
Hypertrophied nails, 264
Hysteria, skin eruptions and, 54
Ichthyosis, acanthosis nigricans differentiated from, 312
— diagnosis of, 17
— etiology of, 16
— keratosis follicularis differentiated from, 310
— symptoms of, 13
— treatment of, 17
— types of, 13
Ichthyosis congenita, 16
Ichthyosis hystrix, 16
Ichthyosis sebacea, 16
Ichthyosis simplex, 13
Impetigo, alopecia following, 256
— follicular, etiology of, 216
— — pathology of, 216
— — symptoms of, 216
— — treatment of, 217
— hydroa vacciniforme differentiated from, 97
— lupus vulgaris differentiated from, 228
Impetigo contagiosa, diagnosis of, 207
— eczema differentiated from, 118
— etiology of, 207
— nail changes due to, 268
— pathology of, 207
— pemphigus vulgaris differentiated from, 101
— prognosis of, 210
— symptoms of, 204
— treatment of, 208
— varieties of, 205
Infancy, eczema in, 113
Infantile scurvy, etiology of, 71
— symptoms of, 71
— treatment of, 71
Infants, multiple abscesses of, 219
Infection, herpes zoster caused by, 92
Injuries, dermatitis caused by, 34
Intertrigo, erythematous, 34
— — eczema differentiated from, 117
Intestinal toxemia, erythema scarlatiniforme and, 59
Iodids, dermatitis caused by, 48, 50
Iodin, dermatitis caused by, 42
Iododerma, 50
Iodoform, dermatitis caused by, 42

Itch, dhobie, 194
— grain, 159
Ixodoidea, 158

Jigger, 168

Keloid, etiology of, 315
— prognosis of, 316
— symptoms of, 315
— treatment of, 316
Keratosis, arsenic causing, 52
Keratosis follicularis, diagnosis of, 310
— etiology of, 310
— prognosis of, 311
— symptoms of, 309
— treatment of, 311
Keratosis follicularis contagiosa, incidence of, 311
— keratosis follicularis differentiated from, 310
Keratosis palmaris et plantaris, etiology of, 18
— symptoms of, 17
— treatment of, 18
Keratosis pilaris, keratosis follicularis differentiated from, 310
Kerion, symptoms of, 176
Koilonychia, 269
Kromayer lamp, nevi and, 11

Land scurvy, symptoms of, 69
La perléche, 343
Lassar's paste, formula of, 347
Legs, hereditary edema of, 309
Lentigo, 287
Leprosy, diagnosis of, 247
— etiology of, 246
— incidence of, 243
— maculo-anesthetic, 246
— nodular, 244
— prognosis of, 247
— symptoms of, 244
— treatment of, 247
— types of, 244
— vitiligo differentiated from, 293
Leukemia, prurigo and, 82
Leukoderma acquisitum centrifugum, 290
Leukonychia, 269
Leukoplakia, psoriasis resembling, 125
Lichen acuminatus, 145
Lichenification, diagnosis of, 141
— etiology of, 141
— prognosis of, 141
— symptoms of, 141
— treatment of, 141
Lichen nitidus, etiology of, 239
— pathology of, 239
— symptoms of, 239
— treatment of, 239
Lichen planus, diagnosis of, 144
— etiology of, 144
— granuloma annulare differentiated from, 240
— lichenification differentiated from, 141
— papular urticaria differentiated from, 80
— pathology of, 144
— prognosis of, 144
— psoriasis differentiated from, 129
— symptoms of, 142
— treatment of, 144
— varieties of, 143
— vitiligo differentiated from, 293
Lichen planus atrophicus, 143
Lichen ruber, 145
Lichen scrofulosorum, etiology of, 238
— symptoms of, 237
— treatment of, 238
Lichen simplex chronicus, eczema differentiated from, 118
— synonyms of, 141
Lichen spinulosus, symptoms and treatment of, 145
Lichen tropicus, 277
Lichen urticatus, 78
Light, dermatitis caused by, 33, 39
Lingua geographica, diagnosis of, 339
— etiology of, 339
— prognosis of, 340
— symptoms of, 338
— treatment of, 339
Lingua nigra, 340

Lipoma, atheroma differentiated from, 282
— diagnosis of, 328
— etiology of, 328
— pathology of, 328
— prognosis of, 328
— symptoms of, 327
— treatment of, 328
Livedo reticularis, passive hyperemia and, 56
Liver spots, 288
Lobar pneumonia, herpes simplex and, 87
Localized scleroderma, 304
Lotio alba, formula of, 348
Lotions, skin, 346
Louse, body, 156
— chicken, 159
— head, 155
— pubic, 157
Lupus, multiple disseminated, measles followed by, 226
Lupus erythematosus, diagnosis of, 242
— etiology of, 242
— hydroa vacciniforme differentiated from, 97
— pathology of, 242
— prognosis of, 243
— symptoms of, 241
— treatment of, 242
Lupus erythematosus disseminatus, 243
Lupus follicularis disseminatus, 226
Lupus vulgaris, derivation of the term, 224
— diagnosis of, 228
— etiology of, 227
— granulosis rubra nasi differentiated from, 278
— pathology of, 228
— prognosis of, 230
— symptoms of, 225
— treatment of, 228
Lymphangioma circumscriptum, 5
Lymphatic nevi, 5

Maculo-anesthetic leprosy, 246
Majocchi's disease, angioma serpiginosum differentiated from, 298
Majocchi's disease, telangiectasia in, 295
Malaria, chloasma occurring in, 288
— erythema nodosum following, 64
Malignancy, xeroderma pigmentosum and, 21
Malignant new growths, skin, 331
Malingering, skin eruptions and, 54
Measles, erythema nodosum following, 64
— erythema scarlatiniforme and, 59
— German, erythema multiforme differentiated from, 62
— livedo reticularis and, 57
— lupus vulgaris following, 226
Mechanical agents, dermatitis caused by, 33
Melanin, hyperpigmentation due to, 284
Melanoma, diagnosis of, 334
— etiology of, 334
— incidence of, 334
— treatment of, 335
Meningitis, cerebrospinal, herpes simplex and, 86
Mercury, dermatitis caused by, 42
Metabolism, eczema and, 117
Metallic salts, hyperpigmentation due to ingestion of, 285
Micrococcus of Unna, 136
Microsporon furfur, 195
Midges, 160
Miliaria, 277
— eczema differentiated from, 117
Miliaria crystallina, 276
Milium, 282
Milroy's disease, 309
Mites, 158, 168
Molluscum contagiosum, course of, 326
— diagnosis of, 327
— etiology of, 326
— pathology of, 326
— prognosis of, 327
— symptoms of, 325
— treatment of, 327
Mongolian spots, 284
Monilethrix, etiology of, 255
— symptoms of, 254
— treatment of, 255

Monilia albicans, 343
Morbus maculosus, Werlhof's, symptoms of, 69
Morphea, 304
— vitiligo differentiated from, 293
Morphin, dermatitis caused by, 48, 52
Mosquitoes, 160
Mouth, herpetic inflammation of, 342
— tuberculosis ulcerosa about, 232
Mucous membranes, diseases of, black tongue, 340
— — Fordyce's disease, 340
— — furrowed tongue, 341
— — general considerations of, 338
— — herpetic stomatitis, 342
— — lingua geographica, 338
— — perlèche, 343
— — thrush, 343
Multiple abscesses of infants, 219
Multiple benign cystic epithelioma, diagnosis, symptoms and treatment of, 27
Multiple disseminated lupus, measles followed by, 226
Multiple pigmented sarcoma, diagnosis of, 334
— etiology of, 334
— incidence of, 334
— treatment of, 335
Munro's abscesses, psoriasis and, 128

Nails, Beau's lines of, 267
— congenital malformations of, 264
— constitutional diseases affecting, 267
— diseases of, 263
— — general diagnosis of, 270
— — koilonychia, 269
— — leukonychia, 269
— — onychauxis, 264
— — onychorrhexis, 269
— — paronychia, 270
— — psoriasis, 268
— — ringworm of, 179
— — treatment of, 271
— — whitlow, 270
— Hippocratic, 267
— localized dermatoses affecting, 268
Nails, miscellaneous affections of, 269
— psoriasis of, symptoms of, 125
— ringworm of, 179
— — diagnosis of, 183
— — treatment of, 188
— spoon, 269
— traumatic affections of, 266
— white, 269
Napkin erythema, diagnosis of, 35
— etiology of, 35
— symptoms of, 35
— treatment of, 36
Necator americanus, 171
Neoplasms, skin, 315
— — malignant, 331
Nephritis, eczema and, 117
Nettle rash, character of, 43
— course of, 74
— diagnosis of, 75
— etiology of, 74
— pathology of, 74
— prognosis of, 76
— symptoms of, 73
— treatment of, 76
Neurodermite, 141
Neurofibromatosis, diagnosis of, 26
— etiology of, 26
— pathology of, 26
— prognosis of, 27
— symptoms of, 25
— treatment of, 27
Nevi, diagnosis of, 9
— etiology of, 10
— giant, 7
— lipoma associated with, 328
— lymphatic, 5
— pathology of, 10
— pigmentary, 5
— symptoms of, 1
— treatment of, 11
— types of, 1
— vascular, 1
Nevus anæmicus, 5
— albinismus differentiated from, 289
Nevus araneus, 3
Nevus flammeus, 2
Nevus linearis, 8
Nevus lipomatodes, 7

Nevus pigmentosus et pilosus, 6
Nevus pilosus, 7
Nevus simplex, 3
Nevus spilus, 6
Nevus unius lateris, 8
Newborn, pemphigus of, 210
New growths, skin, 315
— — malignant, 331
Nikolsky's sign, pemphigus and, 100
Nodular leprosy, 244

Oïdium albicans, 343
Ointments, skin, 346, 347
Onychauxis, 264
Onychogryphosis, 265
Onychophagia, 266
Onychorrhexis, 269
Opium, dermatitis caused by, 48, 52
Oxyuris vermicularis, 171

Pachyonychia congenita, 266
Papular acne, granulosis rubra nasi differentiated from, 278
Papular urticaria, diagnosis of, 80
— etiology of, 79
— incidence of, 78
— pathology of, 79
— prognosis of, 81
— symptoms of, 79
— treatment of, 80
Papulonecrotic tuberculid, etiology of, 238
— pathology of, 238
— symptoms of, 238
— treatment of, 239
Parakeratosis, 117
Parapsoriasis, 133
— livedo reticularis and, 57
Parasites, animal, skin diseases caused by, 151
Parasiticidal remedies, 349
Paronychia, 270
Passive hyperemia, 56
Pastes, skin, 347
Pediculoides ventricosus, 159
Pediculosis, scalp, treatment of, 350
— types of, 152
Pediculosis capitis, diagnosis of, 155
— etiology of, 153
— pathology of, 153
— prognosis of, 156
— symptoms of, 153
— treatment of, 156
Pediculosis corporis, scabies differentiated from, 166
— symptoms of, 156
— treatment of, 157
Pediculosis pubis, 157
Pediculus capitis, 155
Pemphigus, dermatitis herpetiformis differentiated from, 105
— erythema multiforme differentiated from, 62
— impetigo contagiosa differentiated from, 207
— nails affected in, 269
— types of, 98
Pemphigus neonatorum, diagnosis of, 213
— etiology of, 212
— prognosis of, 214
— significance of the term, 210
— symptoms of, 212
— treatment of, 213
Pemphigus vulgaris, diagnosis of, 101
— etiology of, 100
— prognosis of, 102
— symptoms of, 98
— treatment of, 101
Perlèche, diagnosis of, 344
— etiology of, 344
— symptoms of, 343
— treatment of, 344
Phenol, dermatitis caused by, 42
Phenolphthalein, dermatitis caused by, 48, 53
Physical agents, dermatitis caused by, 33
Picric acid, dermatitis caused by, 42
Pigmentary diseases, general considerations of, 284
Pigmentary nevi, 5
Pigmentation, arsenical, 52
Pink lotion, formula of, 346
Pinta, vitiligo differentiated from, 293

Pityriasis, pediculosis capitis differentiated from, 155
Pityriasis capitis, diagnosis of, 135
— etiology of, 134
— symptoms of, 134
— treatment of, 135
Pityriasis rosea, diagnosis of, 139
— eczema seborrheicum differentiated from, 136
— etiology of, 139
— incidence of, 137
— pathology of, 139
— prognosis of, 140
— psoriasis differentiated from, 128
— symptoms of, 138
— treatment of, 140
Pityriasis rubra pilaris, diagnosis of, 147
— etiology of, 147
— nails affected in, 269
— pathology of, 147
— prognosis of, 148
— symptoms of, 145
— treatment of, 147
Pityriasis simplex, alopecia due to, 256
Pityriasis versicolor, diagnosis of, 196
— etiology of, 195
— prognosis of, 196
— symptoms of, 195
— treatment of, 196
Plants, dermatitis caused by, 42
Pneumonia, alopecia due to, 256
— lobar, herpes simplex and, 87
Poison ivy, dermatitis caused by, 43
Poison oak, dermatitis caused by, 46
Poison sumach, dermatitis caused by, 46
Pompholyx, diagnosis of, 94
— etiology of, 93
— pathology of, 93
— prognosis of, 94
— symptoms of, 93
— treatment of, 94
Porthesia chryssorhœa, 161
Powder marks, removal of, 286
Powders, skin, 347
Pressure, dermatitis caused by, 33
Prickly heat, 277
Primary purpura, symptoms of, 67
Primrose, 46
Primula obconica, 46
Progressive pigmentary dermatosis, angioma serpiginosum differentiated from, 298
— diagnosis of, 299
— etiology of, 299
— incidence of, 298
— symptoms of, 299
— treatment of, 299
Progressive scleroderma, 302
Prurigo, dermatitis herpetiformis differentiated from, 105
— diagnosis of, 82
— etiology of, 82
— popular urticaria differentiated from, 79, 80, 82
— pathology of, 82
— prognosis of, 83
— scabies differentiated from, 166
— symptoms of, 81
— treatment of, 82
Prurigo ferox, 81
Prurigo mitis, 81
Prurigo nodularis, 81
Prurigo simplex acutus, 78
Prurigo vulgaris, 81
Pruritus, lichenification and, 141
Pseudochromidrosis, 276
Psoriasis, diagnosis of, 128
— eczema differentiated from, 118, 137
— etiology of, 127
— lichen planus differentiated from, 144
— lupus vulgaris differentiated from, 228
— nail changes due to, 268
— pathology of, 127
— pityriasis rosea differentiated from, 140
— prognosis of, 133
— symptoms of, 124
— treatment of, 129
— vitiligo differentiated from, 293
Pubic lice, 157
Pulex penetrans, 168, 170
Purpura, classification of, 67
— diagnosis of, 70

Purpura, etiology of, 70
— pathology of, 70
— symptomatology of, 66, 69
— treatment of, 70
Purpura annularis telangiectodes, 295
Purpura fulminans, symptoms of, 69
Purpura hæmorrhagica, symptoms of, 69
Purpura rheumatica, symptoms of, 68
Purpura simplex, symptoms of, 68
Pyogenic cocci, skin diseases due to, general considerations of, 203

Quinin, dermatitis caused by, 48, 53
— urticaria caused by, 74

Radiodermatitis, etiology of, 41
— pathology of, 41
— prognosis of, 41
— symptoms of, 39
— telangiectasia in, 295
— treatment of, 41
Radium, alopecia caused by, 257
— dermatitis caused by, 33, 39
— nevi and, 11
Raynaud's disease, diagnosis of, 300
— etiology of, 300
— prognosis of, 300
— scleroderma differentiated from, 304
— symptoms of, 299
— treatment of, 300
Recklinghausen's disease, diagnosis of, 26
— etiology of, 26
— pathology of, 26
— prognosis of, 27
— symptoms of, 25
— treatment of, 27
Resorcin, dermatitis caused by, 42
Rheumatism, erythema nodosum following, 64
— erythema scarlatiniforme and, 59
Rhus antigen, 46
Rhus dermatitis, symptoms of, 44
— treatment of, 45
Rhus diversiloba, dermatitis caused by, 46
Rhus toxicodendron, 46
Rhus venanata, dermatitis caused by, 46
Ringed hair, 263
Ringworm, alopecia due to, 256
— "black dot," alopecia areata differentiated from, 260
— blastomycosis differentiated from, 199
— diagnosis of, 182
— diffuse, pityriasis capitis differentiated from, 135
— eczema seborrheicum differentiated from, 137
— erythema multiforme differentiated from, 62
— favus differentiated from, 192
— glabrous skin, 177
— — diagnosis of, 182
— — psoriasis differentiated from, 128
— — treatment of, 188
— gray patch, 174
— hand and foot, 178
— nail, 179
— — diagnosis of, 183
— — treatment of, 188
— pathology of, 180
— pityriasis rosea differentiated from, 140
— prognosis of, 188
— scalp, diagnosis of, 182
— — incidence of, 173
— — symptoms of, 174
— — treatment of, 183
— treatment of, 183
Ritter's disease, diagnosis of, 308
— etiology of, 308
— prognosis of, 309
— symptoms of, 307
— treatment of, 308
Roentgen rays, alopecia caused by, 257
— dermatitis caused by, 33, 39
— eczema and, 122
— favus and, 193
— lichen planus and, 144
— psoriasis and, 132
— ringworm of scalp and, 184

Rosacea, granulosis rubra nasi differentiated from, 278
Round bodies, Darier's, 310
Rumpbell-Leede phenomenon, 70

Salicylates, dermatitis caused by, 48
Salol, dermatitis caused by, 42
Sand flea, 170
Santonin, dermatitis caused by, 48
Sarcoma, blastomycosis differentiated from, 199
— diagnosis of, 334
— etiology of, 334
— granuloma pyogenicum differentiated from, 220
— incidence of, 331
— treatment of, 335
Sarcoptes scabiei, 166
Scabies, diagnosis of, 166
— eczema differentiated from, 118
— etiology of, 165
— papular urticaria differentiated from, 80
— pathology of, 166
— prognosis of, 168
— symptoms of, 162
— treatment of, 166, 350
Scalp, pediculosis of, treatment of, 350
— ringworm of, diagnosis of, 182
— — incidence of, 173
— — symptoms of, 174
— — treatment of, 183
Scaly skin, 13
Scar, 317
Schamberg's disease, angioma serpiginosum differentiated from, 298
— diagnosis of, 299
— etiology of, 299
— incidence of, 298
— symptoms of, 299
— treatment of, 299
Sclerema neonatorum, diagnosis of, 306
— etiology of, 306
— pathology of, 306
— prognosis of, 307
— scleroderma differentiated from, 305
— symptoms of, 305
— treatment of, 306
Scleroderma, diagnosis of, 304
— etiology of, 304
— pathology of, 304
— prognosis of, 305
— Raynaud's disease differentiated from, 300
— symptoms of, 302
— treatment of, 305
— types of, 302
Scratching, dermatitis caused by, 33
Scrofuloderma, etiology of, 234
— pathology of, 234
— symptoms of, 233
— treatment of, 235
Scrotal tongue, 341
Scurvy, infantile, etiology of, 71
— — symptoms of, 71
— — treatment of, 71
Sebaceous cyst, 282
Sebaceous glands, diseases of, acne vulgaris, 280
— — atheroma, 282
— — comedo, 279
— — cysts, 282
— — milium, 282
Seborrheic eczema, psoriasis differentiated from, 128
— treatment of, 349
Secondary purpura, symptoms of, 69
Sepsis, erythema scarlatiniforme and, 59
Serum rashes, 54
Shingles, 87
Simulidæ, 160
Simulium venustrum, 160
Skin, active hyperemia of, 57
— artificial inflammations of, 33
— bullous diseases of, 84, 98
— circulatory disturbances of, 56
— congenital abnormalities of, 1
— depigmentation of, 288
— diseases of, actinomycosis, 196
— — adenoma sebaceum, 22
— — albinismus, 288
— — angiokeratoma, 297
— — angioma serpiginosum, 297
— — angioneurotic edema, 76
— — animal parasites causing, 151, 162, 170

Skin, diseases of, bacilli causing, 224
— — Bazin's disease, 235
— — bedbugs, 157
— — black flies, 160
— — blastomycosis, 198
— — brown-tailed moth causing, 161
— — callositas, 324
— — chicken lice, 159
— — chilblain, 37
— — chloasma, 288
— — cicatrix, 317
— — clavus, 324
— — creeping eruption, 169
— — demodex folliculorum, 168
— — depigmentation, 288
— — dermatitis exfoliativa neonatorum, 307
— — dermatitis factitia, 54
— — dermatitis gangrenosa infantum, 222
— — dermatitis herpetiformis, 102
— — dermatitis medicamentosa, 47
— — dermatitis vegetans, 220
— — dermatitis venenata, 41
— — diphtheria, 248
— — ecthyma, 210
— — eczema, 108
— — eczema seborrheicum, 135
— — edema neonatorum, 307
— — epidermolysis bullosa, 18
— — epithelioma, 331
— — erysipelas, 214
— — erysipeloid, 215
— — erythema gluteale, 35
— — erythema hyperæmicum, 57
— — erythema induratum, 235
— — erythema intertrigo, 34
— — erythema multiforme, 59
— — erythema nodosum, 63
— — erythema pernio, 37
— — erythema scarlatiniforme, 58
— — favus, 188
— — fleas, 158
— — follicular impetigo, 216
— — formulary of preparations for treatment of, 346
— — fungi causing, 173
— — furunculosis, 217
Skin, diseases of, grain itch, 159
— — granuloma annulare, 240
— — granuloma pyogenicum, 220
— — harvest mite, 168
— — hereditary edema of the legs, 309
— — herpes simplex, 84
— — herpes zoster, 87
— — hydroa puerorum, 97
— — hydroa vacciniforme, 94
— — hyperpigmentation, 284
— — ichthyosis, 13
— — infantile scurvy, 71
— — keloid, 315
— — keratosis follicularis, 309
— — keratosis follicularis contagiosa, 310
— — keratosis palmaris et plantaris, 17
— — lentigo, 287
— — leprosy, 243
— — lichen nitidus, 239
— — lichen planus, 142
— — lichen scrofulosorum, 237
— — lichen spinulosus, 145
— — lichen urticatus, 78
— — lipoma, 327
— — lupus erythematosus, 241
— — lupus erythematosus disseminatus, 243
— — lupus vulgaris, 224
— — malignant new growths of, 331
— — melanoma, 334
— — midges, 160
— — Milroy's disease, 309
— — molluscum contagiosum, 325
— — morphea, 304
— — mosquitoe bites, 160
— — multiple abscesses of infants, 219
— — multiple benign cystic epithelioma, 27
— — multiple pigmented sarcoma, 334
— — napkin erythema, 35
— — neurofibromatosis, 25
— — nevus, 1
— — papular urticaria, 78
— — papulonecrotic tuberculid, 238
— — parapsoriasis, 133
— — pediculosis, 152
— — pemphigus, 98

Skin, diseases of, pemphigus neonatorum, 210
— — pigmentary nevi, 5
— — pityriasis capitis, 134
— — pityriasis rosea, 137
— — pityriasis rubra pilaris, 145
— — pompholyx, 93
— — progressive pigmentary dermatosis, 298
— — prurigo, 81
— — psoriasis, 124
— — purpura, 66
— — pyogenic cocci causing, 203
— — radiodermatitis, 39
— — Raynaud's disease, 299
— — Recklinghausen's disease, 25
— — ringworm, 173
— — Ritter's disease, 307
— — sand flea, 170
— — sarcoma, 331
— — scabies, 162
— — scar, 317
— — Schamberg's disease, 298
— — sclerema neonatorum, 305
— — scleroderma, 302
— — scrofuloderma, 233
— — scurvy, 71
— — sporotrichosis, 199
— — stinging insects, 161
— — sunburn, 38
— — syringocystoma, 28
— — telangiectasia, 295
— — ticks, 158
— — tinea cruris, 194
— — tuberculids, 236
— — tuberculosis, 223
— — tuberculosis ulcerosa, 232
— — tuberculosis verrucosa cutis, 231
— — urticaria, 73
— — urticaria pigmentosa, 28
— — vascular nevi, 1
— — verruca, 318
— — vitiligo, 289
— — warts, 318
— — worms causing, 170
— — xanthoma, 329
— — xeroderma pigmentosum, 19
— — zoster, 87
Skin, dystrophies of, 302
— erythematous disturbances of, 56
— herpes affecting, 84
— hyperpigmentation of, 284
— infectious granulomata of, 196, 198
— inflammations of, artificial, 33
— itching of, 81
— lichenification of, 141
— new growths of, 315
— — malignant, 331
— passive hyperemia of, 56
— prurigo of, 81
— purpura of, 66
— scaling diseases of, 124
— scurvy and, 66
— urticaria and, 73, 78
— vascular diseases of, 295
— vesicular diseases of, 84
Smallpox, vaccination for, erythema multiforme following, 6
Splitting hair, 254
Spoon nails, 269
Spore of Malassez, 136
Sporotrichosis, blastomycosis differentiated from, 199
— diagnosis of, 201
— etiology of, 200
— pathology of, 200
— prognosis of, 201
— symptoms of, 199
— treatment of, 201
Staphylococcus epidermidis albus, 136
Staphylococcus pyogenes, skin diseases due to, 203
Stinging insects, 161
Stomatitis, herpetic, diagnosis of, 342
— — etiology of, 342
— — prognosis of, 343
— — symptoms of, 342
— — treatment of, 342
Strawberry marks, 4
Streptococcus pyogenes, skin diseases due to, 203
Strophulus, 78
Sudamina, 276
Sulphonal, dermatitis caused by, 48
Sulphur, dermatitis caused by, 42
Sumach, dermatitis caused by, 46

Sunburn, treatment of, 38
Sweat glands, diseases of, anidrosis, 276
— — bromidrosis, 275
— — chromidrosis, 276
— — granulosis rubra nasi, 278
— — hematidrosis, 276
— — hyperidrosis, 274
— — miliaria, 277
— — sudamina, 276
Symmetrical gangrene, 299
Symptomatic purpura, symptoms of, 69
Syphilis, acquired, lupus vulgaris differentiated from, 228
— alopecia due to, 256
— blastomycosis differentiated from, 199
— congenital, dermatitis gangrenosa infantum differentiated from, 222
— — eczema seborrheicum differentiated from, 137
— — pemphigus neonatorum differentiated from, 213
— — pemphigus vulgaris differentiated from bullous lesions of, 101
— ecthyma differentiated from pustular lesion of, 210
— eczema differentiated from, 117
— erythema gluteale differentiated from, 35
— erythema hyperæmicum and, 57
— erythema nodosum differentiated from gummata of, 64
— gumma of, erythema induratum differentiated from, 236
— — multiple abscesses of infants differentiated from, 219
— macular lesion of, pityriasis rosea differentiated from, 139
— papulosquamous eruption of, psoriasis differentiated from, 129
— perlèche differentiated from, 344
— telangiectasia in, 295
Syringocystoma, description of, 28

Tænia echinococcus, 170
Tænia solium, 170
Tapeworm, 170
Tar, dermatitis caused by, 42
Tattoo marks, removal of, 286
Telangiectasia, general considerations of, 295
— hereditary hemorrhagic, 296
Thrush, etiology of, 343
— symptoms of, 343
— treatment of, 343
Ticks, 158
Tinea capitis, treatment of, 350
Tinea cruris, 194
Tongue, black, 340
— furrowed, 341
— geographic, 338
— grooved, 341
Toxemia, intestinal, erythema scarlatiniforme and, 59
Toxic erythemas, 58
Toxins, erythema multiforme and, 62
Traumatic dermatitis, diagnosis of, 34, 35
— symptoms of, 34, 35
— treatment of, 34, 36
Trichina spiralis, 171
Trichophyton, pompholyx and, 94
Trichophyton crateriforme, 175
Trichophyton ectothrix, 175
Trichophyton endothrix, 175
Trichorrhexis nodosa, etiology of, 254
— symptoms of, 254
— treatment of, 254
Trichotillomania, 255
Tuberculids, 236
— papulonecrotic, etiology of, 238
— — pathology of, 238
— — symptoms of, 238
— — treatment of, 239
Tuberculosis, blastomycosis differentiated from, 199
— cold abscesses of, multiple abscesses of infants differentiated from, 219
— erythema nodosum and, 64
— skin, types of, 224
Tuberculosis ulcerosa, 232
Tuberculosis verrucosa cutis, etiology of, 232
— pathology of, 232
— symptoms of, 231

Tuberculosis vera cutis, treatment of, 232
Typhoid fever, alopecia due to, 256
— erythema hyperæmicum and, 57
— herpes simplex and, 87
Typhoid vaccine, psoriasis and, 130

Uncinarial dermatitis, 171
Urine, hematoporphyrin in, hydroa vacciniforme and, 97
Urticaria, course of, 74
— diagnosis of, 75
— erythema multiforme differentiated from, 62
— etiology of, 74
— factitious, 74
— giant, 76
— lichen planus differentiated from, 144
— papular, diagnosis of, 80
— — etiology of, 79
— — incidence of, 78
— — pathology of, 79
— — prognosis of, 81
— — symptoms of, 79
— — treatment of, 80
— pathology of, 74
— prognosis of, 76
— scabies differentiated from, 166
— symptoms of, 73
— treatment of, 76
Urticaria pigmentosa, diagnosis of, 31
— etiology of, 31
— pathology of, 31
— symptoms of, 28
— treatment of, 31
— xanthoma differentiated from, 331

Vaccination, smallpox, erythema multiforme following, 61
Vaccines, furunculosis and, 218
— typhoid, psoriasis and, 130
Varicella, erythema scarlatiniforme and, 59
— impetigo contagiosa differentiated from, 207
Varicella, papular urticaria differentiated from, 80
Variola, erythema multiforme resembling, 62
Vascular nevi, types of, 1
Venereal wart, 319
Vernix caseosa, ichthyosis sebacea and, 16
Verruca plana juvenilis, 319
Verruca vulgaris, 318
Verrucæ, course of, 320
— etiology of, 320
— pathology of, 320
— symptoms of, 318
— treatment of, 321
Vitamin C, infantile scurvy due to deficiency in, 71
Vitiligo, diagnosis of, 293
— etiology of, 290
— pathology of, 290
— prognosis of, 294
— symptoms of, 289
— treatment of, 294

Warts, course of, 320
— etiology of, 320
— pathology of, 320
— symptoms of, 318
— treatment of, 321
Wen, 282
White nail, 269
White precipitate ointment, 349
Whitfield's ointment, 349
Whitlow, 270
Worms, cutaneous infestation by, 170
— skin diseases caused by, general considerations of, 151
Wounds, dermatitis caused by, 33

Xanthoma, diagnosis of, 331
— etiology of, 330
— prognosis of, 331
— symptoms of, 329
— treatment of, 331

Xeroderma pigmentosum, diagnosis of, 21
— etiology of, 21
— pathology of, 21
— prognosis of, 22
— symptoms of, 13, 19
— telangiectasia in, 295
— treatment of, 22
X-ray, alopecia caused by, 257
— eczema and, 122
X-ray, favus and, 193
— lichen planus and, 144
— psoriasis and, 132
— ringworm of scalp and, 184

Zinc oxid ointment, formula of, 347
Zona, 87
Zoster, 87
Zoster pectoralis, 90

(1)

27.A.343.
Diseases of the skin in infancy1930
Countway Library BEV7519
3 2044 046 072 310

27.A.343.
Diseases of the skin in infancy1930
Countway Library BEV7519
3 2044 046 072 310